SpecView from WATLOW

Addendum to SpecView Manual

HMI Software

1241 Bundy Boulevard, Winona, Minnesota USA 55987
Phone: +1 (507) 454-5300, Fax: +1 (507) 452-4507 http://www.watlow.com

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1 Chapter 1: Introduction

SpecView is a powerful and easy-to-use Human Machine Interface software package. The purpose of this addendum is to quickly get you up and running using SpecView with Watlow controllers. Chapter 2 provides a brief explanation of concepts that may not be familiar to first time users of SpecView. Basic familiarity with these concepts is assumed in Chapter 3 which provides procedures to walk you through getting Watlow controllers communicating with SpecView. Chapter 4 describes features specific to Watlow controllers.

Additional Resources

In addition to this addendum the following resources are available for learning about SpecView from and other products available from Watlow:

- *SpecView User Manual*—available on the SpecView installation disk and at Watlow.com in the Download Center's User Manuals section; Keyword: SpecView.
- *SpecView Secrets Video Tutorial Series*—available at Watlow.com in the Download Center's Training and Education section.
- *SpecView Quick Start Guide*—and other tutorial documents available at Watlow.com in the Download Center's User Manuals section; Keyword: SpecView.
- *SpecView from Watlow Frequently Asked Questions*—available at Watlow.com in the Download Center's Training and Education section; Keyword: SpecView.
- *SpecView from Watlow Software Download*—the latest version of SpecView from Watlow is always available at Watlow.com in the Download Center's Software and Demos section; Keyword: SpecView.
- *SpecView from Watlow Field Upgrade Order Form*—guides you through the process of adding features to a copy of SpecView you already own. Get the form at Watlow.com in the Download Center's Software and Demos section; Keyword: SpecView.

2 Chapter 2: About Setting up Communications

The following sections provide information to help you understand how to set up communications between SpecView and Watlow controllers.

Protocol Drivers

SpecView includes support for hundreds of different devices. The protocol drivers included with SpecView tell it how to communicate with specific devices. You will need to choose the appropriate driver whenever you want to automatically or manually set up communications between SpecView and one or more devices.

There are several protocol drivers that support Watlow products. The table below lists these protocol drivers and the Watlow models supported by each.

Protocol Driver	Protocol(s)	Supported Watlow Models	Notes
Watlow EZ-ZONE Standard Bus	Standard Bus	EZ-ZONE PM, EZ-ZONE RM, EZ-ZONE ST	Recommended for EZ-ZONE.
Watlow Modbus	Modbus RTU Modbus TCP	EZ-ZONE PM, EZ-ZONE RM, EZ-ZONE ST, SERIES 96, 97, SD MICRODIN, POWER SERIES, 986, 987, 988, 989 SERIES F4 Ramping	Support for basic operation parameters in EZ-ZONE products. See *EZ-ZONE Modbus Instruments* on page 37. Limited support for programming SERIES F4 profiles.
Watlow F4 Profile	Modbus RTU	SERIES F4 Ramping	Allows saving profiles as recipes. Requires Series F4 Programmer ordering option.
Anafaze 16 Loop	Modbus RTU	16CLS, CLS216, 16MLS, MLS316	Standard firmware option only
Anafaze 32 Loop	Modbus RTU	32MLS, MLS332	Standard firmware option only
Anafaze 8 Loop	Modbus RTU	4CLS, CLS204, 8CLS, CLS208	Standard firmware option only
Anafaze Ramp/Soak	Modbus RTU	CLS204, CLS208, CLS216, MLS316, MLS332	Ramp/Soak Profile programming and operation
Anafaze/AB	ANAFAZE	32MLS	Proprietary Anafaze protocol

Using More than One Protocol Driver

All the protocol drivers listed in the table above that support Modbus RTU are compatible with each other. SpecView allows compatible protocol drivers to be used on the same port, but you will need to help SpecView by instructing it when to do so. When there are controllers connected to the same port that require different drivers, you will scan once for each required protocol driver to automatically detect the various devices.

If your configuration requires communicating with controllers supported by different protocols, each protocol must have its own network connected to SpecView via a separate communications port. Support for multiple communication ports is an ordering option for SpecView, and is field upgradeable.

Automatic and Manual Configuration

SpecView can automatically detect and set up communications with controllers. However, in some cases it may be necessary to manually configure SpecView. This method is particularly useful if you want to create screens and configure SpecView prior to receiving your controllers. It is also possible to manually add or remove controllers from any configuration whether it was created automatically or manually. This addendum contains procedures for automatically and manually configuring communications for the various networking options supporting Watlow controllers.

SpecView can automatically detect EZ-ZONE controllers using the Standard Bus communications protocol. When using Modbus with EZ-ZONE controllers create the configuration manually.

Naming Instruments

It is useful to name instruments such that you can easily relate what you see on the screen in SpecView to your equipment and processes. You might want to use a name that:

- Indicates the controller's function in the process

- Indicates the controller's location in the panel
- Includes network information such as port and address

When you add instruments to a configuration manually, you have the opportunity to name them as you wish. When SpecView adds instruments during automatic detection, they are named automatically based on a default name plus one or more numbers. For the Watlow EZ-ZONE Standard Bus driver, the automatic names include the communications port, an instrument name, the controller's address and for instruments where more than one instance can occur at the same address, the instance number. For example, the first control loop instrument for an EZ-ZONE controller at zone 5 on communications port 7 is named, "C7-EZ-5 Ctlr-1".

You can change an instrument's name whenever you like. See *Rename an Instrument* on page 29.

Saving Settings in Non-Volatile Memory

Watlow controllers can protect their non-volatile memory from being worn out prematurely due to excessive use that may occur when communicating with devices such as a PLC that send the same settings to a controller many times a second. In these controllers, the settings received via communications can be held in volatile memory that is cleared when the controller is turned off. Since SpecView will typically send parameter settings to a controller only when you edit a parameter on the screen, for your convenience you can set the controller to routinely save the parameter settings that come through communications in non-volatile memory. That way the values you set are saved even when the controller is powered down. Consult the controller manual for the appropriate parameter, typically called, "Non-Volatile Save".

Using EZ-ZONE Controllers with Standard Bus

When automatically detecting a Standard Bus network with the Watlow EZ-ZONE Standard Bus driver, SpecView reads each device's part number and adds the appropriate instruments. The table below lists for each instrument with which part numbers it is used and the format of the address string that must be entered when configuring SpecView manually.

SpecView Address Strings for EZ-ZONE Devices via Standard Bus

The addresses entered into SpecView for each instrument consist of one or two parts. The table below indicates which instruments require the second part. Device addresses consist of:

- "z" the Zone number or Standard Bus address (1 to 9, A, B, C, D, E, F, H or J)
- A semicolon when an offset is required
- The offset or instance number required for some instruments supporting PM and RM controllers. For the individual Function Block instruments the offset is shown as "o" in the Address String; in that case enter the instance number of the function block. For example, for Alarm 7 in an RM at zone 5 the Address String is, "5;7".

Model	For part numbers matching…	Add… *Instrument Name* (Description)	Address String	Named[1]
PM	PMxxxxx-xxxxVxx (V = A, C, D or F)	*PM Zone* (alarm, digital input, output, global and diagnostic)	z	Cn-EZ-z Zone
	PMxUxxx-xxxxVxx (U = C, R, B, J, N, E or S) (V = A, C, D or F)	*Control-Loop* (setup and monitor loop 1)	z;1	Cn-EZ-z Ctlr-1
	PMxxxxx-x(C or J)xxVxx (V = A, C, D or F)	*Control-Loop* (setup and monitor loop 2)	z;2	Cn-EZ-z Ctlr-2
	PMxxxxx-x(L or M)xxVxx (V = A, C, D or F)	*Integrated Limit*	z	Cn-EZ-z Limit
	PMxxxxx-x(R or P)xxVxx (V = A, C, D or F)	*Auxiliary Input*	z;2	Cn-EZ-z AI-2
	PMxxxxx-xTxxVxx (V = A, C, D or F)	*Single Current Input*	z;1	Cn-EZ-z CT-1
	PMxxxxx-xxxx(C or F)xx	*PM Function Blocks*	z	Cn-EZ-z FB
	PMxUxxx-xxxxVxx (U = L, M or D) (V = A, C, D or F)	*Stand Alone and RM Limit* (not in PM with a control loop)	z;1	Cn-EZ-z Limit-1
	PMxUxxx-xxxxxxx (U = R, B, N or E)	*PM Profiling* (program and operate ramp-soak profiles)	z	Cn-EZ-z Prof
	PMxCxxx-xxxx(B or E)xx	*PM Express Controller*	z	Cn-EZ-z Ctlr
	PMxLxxx-xxxx(B or E)xx	*PM Express Limit_*	z	Cn-EZ-z Limit
	PMxTxxx-xxxxxxx	*PM Timer*	z	Cn-EZ-z Timer
RMA	RMAx-xxxx-xxxx	*RMA Zone* (global and diagnostic)	z	Cn-EZ-z Zone
	RMAx-xYxx-xxxx (Y = 2, 3, 5, or 6)	*RMA Gateway*	Z	Cn-EZ-z GW
	RMAx-xxxD-xxxx	*RM Data Logging*	z	Cn-EZ-z Log
RMC	RMCxxxxxxxxxxxx	*RM Zone* (alarms, actions globals and diagnostics)	z	Cn-EZ-z Zone
	RMCxxxxxxxxxxxx	*RMC Outputs 1 to 8*	z	Cn-EZ-z Out
	RMCxxxxxxxxxxxx	*RM Function Blocks*[2]	z	Cn-EZ-z FB
	RMCYxxxxxxxxxx (Y = 1, 2, 3 or 4)	*Control-Loop* (setup and monitor control loop 1)	z;1	Cn-EZ-z Ctlr-1
	RMCxx(1 or 2)xxxxxxxxx	*Control-Loop* (setup and monitor control loop 2)	z;2	Cn-EZ-z Ctlr-2
	RMCxxxx(1 or 2)xxxxxxx	*Control-Loop* (setup and monitor control loop 3)	z;3	Cn-EZ-z Ctlr-3
	RMCxxxxxx(1 or 2)xxxxx	*Control-Loop* (setup and monitor control loop 4)	z;4	Cn-EZ-z Ctlr-4

Model	For part numbers matching…	Add… *Instrument Name* (Description)	Address String	Named[1]
RMC (cont.)	RMC(5 or 6)xxxxxxxxxx	*Stand Alone and RM Limit* (set up and monitor limit 1)	z;1	Cn-EZ-z Lim-1
	RMCxx(5 or 6)xxxxxxxxx	*Stand Alone and RM Limit* (set up and monitor limit 2)	z;2	Cn-EZ-z Lim-2
	RMCxxxx(5 or 6)xxxxxxx	*Stand Alone and RM Limit* (set up and monitor limit 3)	z;3	Cn-EZ-z Lim-3
	RMCxxxxxx(5 or 6)xxxxx	*Stand Alone and RM Limit* (set up and monitor limit 4)	z;4	Cn-EZ-z Lim-4
	RMC7xxxxxxxxxx	*Single Current Input* (set up and monitor current input 1)	z;1	Cn-EZ-z CT-1
	RMCxx7xxxxxxxx	*Single Current Input* (set up and monitor current input 2)	z;2	Cn-EZ-z CT-2
	RMCxxxx7xxxxxx	*Single Current Input* (set up and monitor current input 3)	z;3	Cn-EZ-z CT-3
	RMCxxxxxx7xxxxx	*Single Current Input* (set up and monitor current input 4)	z;4	Cn-EZ-z CT-4
	RMCxx(R or P)xxxxxxxxx	*Auxiliary Input* (set up and monitor analog input 2)	z;2	Cn-EZ-z AI-2
	RMCxxxx(R or P)xxxxxxx	*Auxiliary Input* (set up and monitor analog input 3)	z;3	Cn-EZ-z AI-3
	RMCxxxxxx(R or P)xxxxx	*Auxiliary Input* (set up and monitor analog input 4)	z;4	Cn-EZ-z AI-4
	RMCxxxxxxxCxxxx	*Digital I/O 07 to 12*	z	Cn-EZ-z DIO 07-12
	RMC(3 or 4)xxxxxxxxxx	*RMC Profile Operation* (setup and operate ramp and soak)	z	Cn-EZ-z Prof Ops
	RMC(3 or 4)xxxxxxxxxx	*RMC Profiles 1 to 5* (program profiles steps 1 to 50)	z	Cn-EZ-z Prof 1-5
	RMC(3 or 4)xxxxxxxxxx	*RMC Profiles 6 to 10* (program steps 51 to 100)	z	Cn-EZ-z Prof 6-10
	RMC(3 or 4)xxxxxxxxxx	*RMC Profiles 11 to 15* (program steps 101 to 150)	z	Cn-EZ-z Prof 11-15
	RMC(3 or 4)xxxxxxxxxx	*RMC Profiles 16 to 20* (program steps 151 to 200)	z	Cn-EZ-z Prof 16-20
	RMC(3 or 4)xxxxxxxxxx	*RMC Profiles 21 to 25* (program steps 201 to 250)	z	Cn-EZ-z Prof 21-25
	RMC(3 or 4)xxxxxxxxxx	*RMC Sub Routines 1 to 5* (sub routine steps 1 to 50)	z	Cn-EZ-z SR-1-5
	RMC(3 or 4)xxxxxxxxxx	*RMC Sub Routines 6 to 10* (sub routine steps 51 to 100)	z	Cn-EZ-z SR-6-10
	RMC(3 or 4)xxxxxxxxxx	*RMC Sub Routines 11 to 15* (sub routine steps 101 to 150)	z	Cn-EZ-z SR-11-15

Model	For part numbers matching…	Add… *Instrument Name* (Description)	Address String	Named[1]
RME	RMEx-xxxx-xxxx	*RM Zone* (alarms, actions globals and diagnostics)	z	Cn-EZ-z Zone
	RMEx-xxxx-xxxx	*RM Function Blocks*[2]	z	Cn-EZ-z FB
	RMEx-Cxxx-xxxx	*Digital I/O 01 to 06*	z	Cn-EZ-z DIO 01-06
	RMEx-Vxxx-xxxx (V = J, K, F or L)	*RM Outputs 1 to 4*	z	Cn-EZ-z Out 01-04
	RMEx-xCxx-xxxx	*Digital I/O 07 to 12*	z	Cn-EZ-z DIO 07-12
	RMEx-xVxx-xxxx (V = J, K, F or L)	*RM Outputs 7 to 10*	z	Cn-EZ-z Out 07-10
	RMEx-xxCx-xxxx	*Digital I/O 13 to 18*	z	Cn-EZ-z DIO 13-18
	RMEx-xxVx-xxxx (V = J, K, F or L)	*RM Outputs 13 to 16*	z	Cn-EZ-z Out 13-16
	RMEx-xxx(F or L)-xxxx	*RM Outputs 19 to 22*	z	Cn-EZ-z Out 19-22
	RMEx-xxxC-xxxx	*Digital I/O 19 to 24*	z	Cn-EZ-z DIO 19-24

RMH	RMHx-xxxx-xxxx	*RM Zone* (alarms, actions globals and diagnostics)[3]	z	Cn-EZ-z Zone
		RM Function Blocks[2]	z	Cn-EZ-z FB
	RMHx-(1 or 2)xxx-xxxx	*Control-Loop* (setup and monitor control loop 1)	z;1	Cn-EZ-z Ctlr-1
		Control-Loop (loop 2)	z;2	Cn-EZ-z Ctlr-2
		Control-Loop (loop 3)	z;3	Cn-EZ-z Ctlr-3
		Control-Loop (loop 4)	z;4	Cn-EZ-z Ctlr-4
	RMHx-x(1 or 2)xx-xxxx	*Control-Loop* (loop 5)	z;5	Cn-EZ-z Ctlr-5
		Control-Loop (loop 6)	z;6	Cn-EZ-z Ctlr-6
		Control-Loop (loop 7)	z;7	Cn-EZ-z Ctlr-7
		Control-Loop (loop 8)	z;8	Cn-EZ-z Ctlr-8
	RMHx-xx(1 or 2)x-xxxx	*Control-Loop* (loop 9)	z;9	Cn-EZ-z Ctlr-9
		Control-Loop (loop 10)	z;10	Cn-EZ-z Ctlr-10
		Control-Loop (loop 11)	z;11	Cn-EZ-z Ctlr-11
		Control-Loop (loop 12)	z;12	Cn-EZ-z Ctlr-12
	RMHx-xxx(1 or 2)-xxxx	*Control-Loop* (loop 13)	z;13	Cn-EZ-z Ctlr-13
		Control-Loop (loop 14)	z;14	Cn-EZ-z Ctlr-14
		Control-Loop (loop 15)	z;15	Cn-EZ-z Ctlr-15
		Control-Loop (loop 16)	z;16	Cn-EZ-z Ctlr-16
	RMHx-xxCx-xxxx	*Digital I/O 01 to 06*	z	Cn-EZ-z DIO 01-06
	RMHx-xx(J, F or L)x-xxxx	*RM Outputs 1 to 4*	z	Cn-EZ-z Out 01-04

	RMHx-xxxC-xxxx	*Digital I/O 07 to 12*	z	Cn-EZ-z DIO 07-12

Model	**For part numbers matching…**	**Add… *Instrument Name* (Description)**	**Address String**	**Named**[1]
RMH (cont.)	RMHx-xxx(J, F or L)-xxxx	*RM Outputs 7 to 10*	z	Cn-EZ-z Out 07-10
RML	RMLx-xxxx-xxxx	*RM Zone* (alarms, actions globals and diagnostics)[3]	z	Cn-EZ-z Zone
		RM Function Blocks[2]	z	Cn-EZ-z FB
		Stand Alone and RM Limit (set up and monitor limit 1)	z;1	Cn-EZ-z Lim-1
		Stand Alone and RM Limit (set up and monitor limit 2)	z;2	Cn-EZ-z Lim-2
		Stand Alone and RM Limit (set up and monitor limit 3)	z;3	Cn-EZ-z Lim-3
		Stand Alone and RM Limit (set up and monitor limit 4)	z;4	Cn-EZ-z Lim-4
	RMLx-x(5 or 6)xx-xxxx	*Stand Alone and RM Limit* (set up and monitor limit 1)	z;5	Cn-EZ-z Lim-5
		Stand Alone and RM Limit (set up and monitor limit 2)	z;6	Cn-EZ-z Lim-6
		Stand Alone and RM Limit (set up and monitor limit 3)	z;7	Cn-EZ-z Lim-7
		Stand Alone and RM Limit (set up and monitor limit 4)	z;8	Cn-EZ-z Lim-8
	RMLx-xx(5 or 6)x-xxxx	*Stand Alone and RM Limit* (set up and monitor limit 1)	z;9	Cn-EZ-z Lim-9
		Stand Alone and RM Limit (set up and monitor limit 2)	z;10	Cn-EZ-z Lim-10
		Stand Alone and RM Limit (set up and monitor limit 3)	z;11	Cn-EZ-z Lim-11
		Stand Alone and RM Limit (set up and monitor limit 4)	z;12	Cn-EZ-z Lim-12
	RMLx-xxCx-xxxx	*Digital I/O 01 to 06*	z	Cn-EZ-z DIO 01-06
	RMLx-xxJx-xxxx	*RM Outputs 1 to 4*	z	Cn-EZ-z Out 01-04
	RMLx-xxxx-xxxx	*Digital I/O 07 to 12*	z	Cn-EZ-z DIO 07-12

Model	For part numbers matching…	Add… *Instrument Name* (Description)	Address String	Named[1]
RMS	RMSx-xxxx-xxxx	*RM Zone* (alarms, actions globals and diagnostics)[3]	z	Cn-EZ-z Zone
		RM Function Blocks[2]	z	Cn-EZ-z FB
		Auxiliary Input (input 1)	z;1	Cn-EZ-z AI-1
		Auxiliary Input (input 2)	z;2	Cn-EZ-z AI-2
		Auxiliary Input (input 3)	z;3	Cn-EZ-z AI-3
		Auxiliary Input (input 4)	z;4	Cn-EZ-z AI-4
	RMSx-x(R or P)xx-xxxx	*Auxiliary Input (input 5)*	z;5	Cn-EZ-z AI-5
		Auxiliary Input (input 6)	z;6	Cn-EZ-z AI-6
		Auxiliary Input (input 7)	z;7	Cn-EZ-z AI-7
		Auxiliary Input (input 8)	z;8	Cn-EZ-z AI-8
	RMSx-xx(R or P)x-xxxx	*Auxiliary Input (input 9)*	z;9	Cn-EZ-z AI-9
		Auxiliary Input (input 10)	z;10	Cn-EZ-z AI-10
		Auxiliary Input (input 11)	z;11	Cn-EZ-z AI-11
		Auxiliary Input (input 12)	z;12	Cn-EZ-z AI-12
	RMSx-xxx(R or P)-xxxx	*Auxiliary Input (input 13)*	z;13	Cn-EZ-z AI-13
		Auxiliary Input (input 14)	z;14	Cn-EZ-z AI-14
		Auxiliary Input (input 15)	z;15	Cn-EZ-z AI-15
		Auxiliary Input (input 16)	z;16	Cn-EZ-z AI-16
	RMSx-xxCx-xxxx	*Digital I/O 01 to 06*	z	Cn-EZ-z DIO 01-06
	RMSx-xxJx-xxxx	*RM Outputs 1 to 4*	z	Cn-EZ-z Out 01-04
	RMSx-xxx(C or B)-xxxx	*Digital I/O 07 to 12*	z	Cn-EZ-z DIO 07-12
	RMSx-xxxJ-xxxx	*RM Outputs 7 to 10*	z	Cn-EZ-z Out 07-10

RM[2]	RMYx-xxxx-xxxx (Y = E, H, L or S) or RMCxxxxxxxxxxx	*Function Block: Action*	z;o	EZ Act-
		Function Block: Alarm	z;o	EZ Alm-
		Function Block: Compare	z;o	EZ Cmp-
		Function Block: Counter	z;o	EZ Ctr-
		Function Block: Linearization	z;o	EZ Lnr-
		Function Block: Logic	z;o	EZ Lgc-
		Function Block: Math	z;o	EZ Math-
		Function Block: Special Output	z;o	EZ SOF-
		Function Block: Timer	z;o	EZ Tmr-
		Function Block: Variable	z;o	EZ Var-

Model	For part numbers matching…	Add… *Instrument Name* (Description)	Address String	Named[1]
ST	STxx-xxxx-xxxx	*ST Controller* (setup and monitor control loop and limit)	z	Cn-EZ-z Ctlr
	STxx-xxxx-xPxx	*ST Profiling* (program and operate ramp-soak profiles)	z	Cn-EZ-z Prof

Notes

[1]Instrument names are shown as automatically detected by SpecView where “n” is replaced by the port number and “z” is replaced by the zone number (also known as Standard Bus address).

[2] These instruments are not automatically added to configurations. The RM Function Block instrument includes four or eight instances of each type of function block. Several types of EZ-ZONE RM modules support more function block instances than that. To access these additional instances, add the appropriate function block specific instrument for each instance you want to access.

[3]The RM Zone instrument includes eight instances of alarms. Several types of EZ-ZONE RM modules support more alarm instances. Add a Function Block: Alarm instrument manually for each additional instance you want to access.

Using EZ-ZONE Controllers with Modbus

To configure SpecView to communicate with EZ-ZONE products via Modbus you will select and add appropriate instruments manually. For each instrument you must determine the correct address string. The address string depends on the type of network and its configuration. You will add as many instances as needed to allow access to the desired controller features. For example, to access all four analog inputs in an EZ-ZONE RM Control Module, you will add four *EZ-ZONE Analog Input* instruments.

SpecView Instruments Supporting EZ-ZONE Devices via Modbus

The tables below list the instruments that may be used with each EZ-ZONE product. Additional tables in the *EZ-ZONE Modbus Instruments* section on page 37 list each parameter included in these instruments. Review the supported parameters carefully and determine whether they allow you to develop a configuration that meets your requirements. Standard Bus communications provides access to many more EZ-ZONE controller parameters.

SpecView Address Strings for EZ-ZONE Devices via Modbus

The address strings entered in SpecView for each instrument consist of three parts:

- The controller or gateway’s address
- A comma followed by the number of decimal places to be displayed
- A semicolon followed by the register address offset

Controller or Gateway’s Address

For Modbus TCP specify the IP address followed by a comma and the controller or gateway’s Modbus address (1 to 247). EZ-ZONE controllers and gateways will respond to any valid setting for the Modbus Address. It is not necessary to set each device to a unique Modbus address, but each must have a unique and appropriate IP address.

For Modbus RTU specify the controller or gateway’s Modbus address (1 to 247). This is set in the controller or gateways Setup Communications menu. Each controller or gateway on the network must have a unique Modbus address.

Decimal Places

Specify zero (0) to display whole numbers for parameters such as process variable and set point. Specify one (1) to display these parameters with tenths precision, two (2) to display hundredths and so on. With Modbus TCP networks you must include the decimal setting in the address string. For a Modbus RTU network if the decimal place setting and comma delimiter are omitted, SpecView will display whole numbers. Valid settings range from zero (0) to four (4).

Register Address Offset

The register address offset is the sum of the *First Instance Address* for the specific EZ-ZONE product, any applicable *Instance Offsets* and the *Gateway Offset*, if any. The tables below give the First Instance Address and Instance Offset for each instrument and product. The Gateway Offset is set by the user when the RUI Gateway or RM Access Module gateway is configured. The First Instance Address and Instance Offsets depend on the controller's data map setting.

Gateway Offset

Be careful not to set up instruments that attempt to read Modbus registers that are mapped over by the configuration of the gateway.

Register Addresses and Offsets for EZ-ZONE ST

Instrument	Instances	Data Map 1 via RUI Only*		Data Map 2**	
		First Instance Address	Instance Offset	First Instance Address	Instance Offset
EZ-ZONE Alarm	1 to 2	1480	50	1450	60
EZ-ZONE Analog Input	1 to 2	360	160	360	90
EZ-ZONE Control Loop	1	N/A	N/A	1750	N/A
EZ-ZONE Communications	1	2418	N/A	2060	20
EZ-ZONE Current	1	1120	N/A	1240	N/A
EZ-ZONE Digital I/O	1 to 6	880	30	940	30
EZ-ZONE Limit	1	680	N/A	720	N/A
EZ-ZONE Profile (Map 1)**	1 to 4	6070	500	N/A	N/A
EZ-ZONE Profile (Map 2)**	1 to 4	N/A	N/A	4000	1000
EZ-ZONE Profile (ST Map 1)	1 to 4	2870	800	N/A	N/A
EZ-ZONE Profile Operation	1	2720	N/A	3800	N/A
EZ-ZONE Set Points	1	2160	N/A	1890	N/A

*Supported only via EZ-ZONE RUI Gateway. **Available with firmware version 4.0 or later.

Register Addresses and Offsets for EZ-ZONE PM

Instrument	Instances	Data Map 1		Data Map 2	
		First Instance Address	Instance Offset	First Instance Address	Instance Offset
EZ-ZONE Alarm	1 to 4	1480	50	1880	60
EZ-ZONE Analog Input	1 to 2	360	80	360	90
EZ-ZONE Communications	1 or 2	2490	20	2970	20
EZ-ZONE Control Loop	1 to 2	1880	70	2360	70
EZ-ZONE Current	1	1120	N/A	1360	N/A
EZ-ZONE Digital I/O	1 to 12	880	30	1000	30
EZ-ZONE Limit	1	680	N/A	720	N/A
EZ-ZONE Profile (Map 1)	1 to 4	2570	500	N/A	N/A
EZ-ZONE Profile (Map 2)	1 to 4	N/A	N/A	4500	1000
EZ-ZONE Profile Operation	1	2520	N/A	4340	N/A
EZ-ZONE Set Points	1 to 2	2160	80	2640	80

Register Addresses for EZ-ZONE Express Controller

Instrument	First Instance Address*
EZ-ZONE Alarm	1480
EZ-ZONE Analog Input	360
EZ-ZONE Control Loop	1880
EZ-ZONE Set Points	2160

*PM Express has only one instance each.

Register Addresses for EZ-ZONE Express Limit

Instrument	First Instance Address*
EZ-ZONE Alarm	1480
EZ-ZONE Analog Input	360
EZ-ZONE Limit	680

*PM Express has only one instance each.

Register Addresses and Offsets for EZ-ZONE RMC Modules

Instrument	Instances	First Instance Address	Instance Offset
EZ-ZONE Alarm	1 to 8	1740	60
EZ-ZONE Analog Input	1 to 4	360	90
EZ-ZONE Communications	1	2830	N/A
EZ-ZONE Control Loop	1 to 4	2220	70
EZ-ZONE Current	1 to 4	1380	50
EZ-ZONE Digital I/O	1 to 12	1020	30
EZ-ZONE Limit	1 to 4	720	30
EZ-ZONE Profile (Map 2)	1 to 25	5440	1000
EZ-ZONE Profile Operation	1	5280	N/A
EZ-ZONE Set Points	1 to 4	2500	80
EZ-ZONE Sub Routine	1 to 15	30440	860

Register Addresses and Offsets for EZ-ZONE RME Modules

Instrument	Instances	First Instance Address	Instance Offset
EZ-ZONE Alarms	1 to 8	1440	60
EZ-ZONE Communications	1	2170	N/A
EZ-ZONE Digital I/O	1 to 24	360	30

Register Addresses and Offsets for EZ-ZONE RMH Modules

Instrument	Instances	First Instance Address	Instance Offset
EZ-ZONE Alarms	1 to 24	2660	60
EZ-ZONE Analog Input	1 to 16	380	90
EZ-ZONE Communications	1	6510	N/A
EZ-ZONE Control Loop	1 to 16	4100	70
EZ-ZONE Digital I/O	1 to 12	1820	30
EZ-ZONE Set Points	1 to 16	5220	80

Register Addresses and Offsets for EZ-ZONE RML Modules

Instrument	Instances	First Instance Address	Instance Offset
EZ-ZONE Alarms	1 to 16	2530	60
EZ-ZONE Analog Input	1 to 12	410	90
EZ-ZONE Communications	1	3500	N/A
EZ-ZONE Digital I/O	1 to 12	1850	30
EZ-ZONE Limit	1 to 12	1490	30

Register Addresses and Offsets for EZ-ZONE RMS Modules

Instrument	Instances	First Instance Address	Instance Offset
EZ-ZONE Alarms	1 to 16	2500	60
EZ-ZONE Analog Input	1 to 16	380	90
EZ-ZONE Communications	1	3470	N/A
EZ-ZONE Digital I/O	1 to 12	1820	30

Address String Example 1: Analog Input 1 in an EZ-ZONE ST via Modbus RTU

If an EZ-ZONE ST will communicate with SpecView directly (no gateway) via Modbus RTU, the First Instance Address for an *EZ-ZONE Analog Input* instrument that will read the value of analog input 1 is 360. If its Modbus address on the 485 network is 2, then the address string for the EZ-ZONE Analog Input instrument could be simply “2;360”. If you want to display the analog input value with tenths precision then make it, “2,1;360”.

Note that we must use data map 2 because data map 1 is not supported by SpecView for EZ-ZONE STs without a gateway.

Address String Example 2: Analog Input 2 in an EZ-ZONE ST via Modbus RTU

For the same network as Example 1 the address string for an EZ-ZONE Analog Input instrument supporting analog input 2 in the EZ-ZONE ST, the address string is “2,1;450” The register address offset is 450 because that’s the address for the first analog input plus the offset 90 to reach the second input.

Address String Example 3: EZ-ZONE PM Controllers via an EZ-ZONE RUI Gateway with Modbus TCP

Consider three EZ-ZONE PM controllers configured for data map 2 and connected to an EZ-ZONE RUI Gateway with the local/remote gateway offsets set to 0, 4000 and 8000 respectively. To determine the register address offset for an *EZ-ZONE Set Points* instrument to support the second control loop in the third EZ-ZONE PM, locate the First Instance Address and the Instance Offset. These are 2640 and 80 respectively. Add these together for control loop instance 2 and add the gateway offset for the third controller: 2640 + 80 + 8000 = 10720. So the register address offset is 10720.

If the Gateway’s IP address is 10.3.37.105, then the address string is, “10.3.37.105,1,2;10720” where the comma one (,1) after the IP address is the Modbus address of the gateway and the comma two (,2) after that specifies that values be displayed in hundredths where applicable.

EZ-ZONE Modbus Profile Instruments

The instruments supporting programming profiles include 10 steps each. Therefore, the instance offsets indicated above are ten times the instance offsets indicated for the steps in the controller manuals.

Old EZ-ZONE Modbus Instruments

The following instruments are included in the Watlow Modbus driver, but are no longer described in this document. These instruments were provided in the original release supporting Watlow EZ-ZONE products prior to the availability of support via Standard Bus. These instruments are not maintained or tested for use with later versions. They are provided for backwards compatibility only.

- EZ-ZONE PM Controller
- EZ-ZONE PM Limit
- EZ-ZONE PM Profiling
- EZ-ZONE ST Controller
- EZ-ZONE ST Profiling
- EZ-ZONE Gateway ST Controller
- EZ-ZONE Gateway ST Profiling

Note: These instruments support data map 1 only.

3 Chapter 3: Setup Procedures

The following sections provide procedures for establishing communications between SpecView and Watlow controllers.

Automatically Detect a New Standard Bus, 485 or 232 Network

The following procedure guides you through the process of configuring SpecView to communicate with Watlow controllers via Standard Bus, 232 and 485 serial communications. It is assumed that the controllers are connected correctly to one or more of the computer's serial communications ports. To add a controller to an existing configuration, see *Manually Set up or Modify an EZ-ZONE Standard Bus Network* on page 18.

To create a configuration automatically:

1) Set all controllers to the same baud rate. (Not necessary for Standard Bus.)

2) Set each controller to a unique address or zone number.

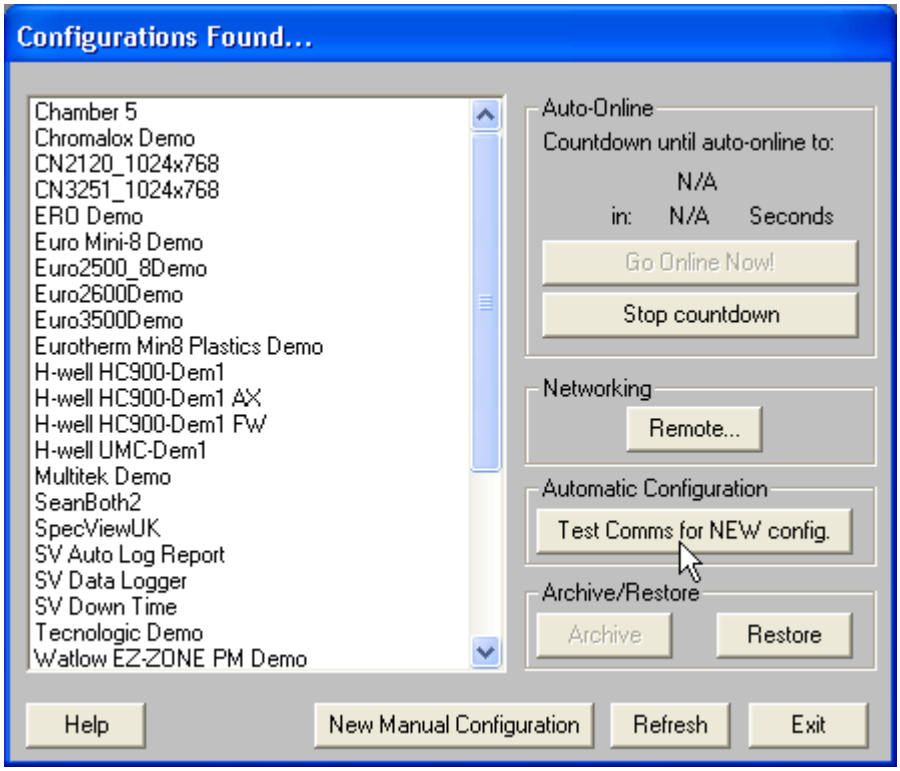
3) Launch SpecView and click through any informational dialogs until you get to the **Configurations Found** dialog.

4) Click **Stop countdown**.

5) Click **Test Comms for NEW config**.

6) Enter a name for the configuration.

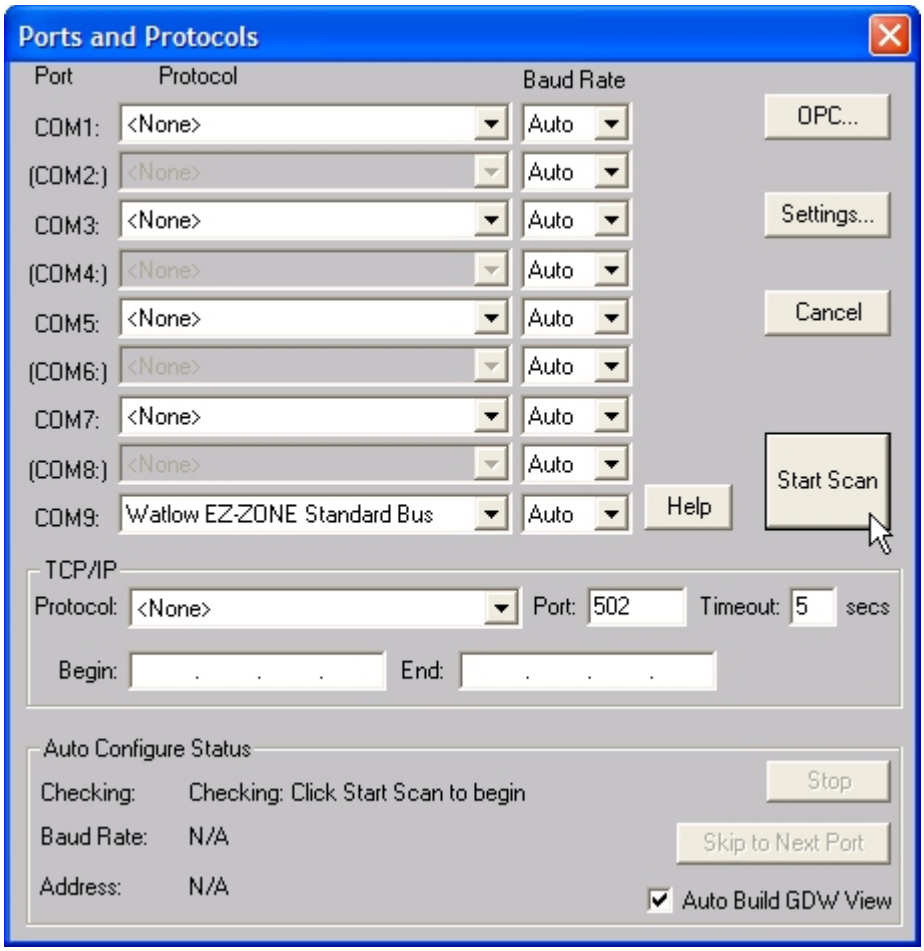
7) Click **OK**.



8) For the **Port** to which the controllers are attached, choose the appropriate protocol driver in **Protocol**. See the table below.

Note: If there are controllers on the same port that require different drivers, you will need to repeat steps 8 to 10 for each protocol.

9) Click **Start Scan**.

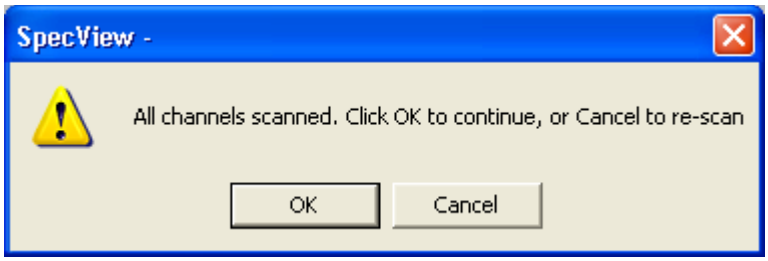


For this Controller…	Choose this Protocol Driver…	Notes
EZ-ZONE PM, RM or ST	Watlow EZ-ZONE Standard Bus	
SERIES 96, 97, SD MICRODIN, POWER SERIES, 986, 987, 988, 989	Watlow Modbus	
SERIES F4 Ramping	Watlow Modbus Watlow F4 Programmer[1]	For the SERIES F4 Profiling controller, scan twice, once with each protocol driver. Add the F4 Cascade instrument manually if desired. See *Manually Set up or Modify a Modbus RTU, 485 or 232 Network* on page 22.
16CLS, 16MLS, CLS216, MLS316	Anafaze 16 Loop	CLS200 and MLS300 Standard and Ramp/Soak firmware options. For controllers with Ramp/Soak to add the Anafaze Profile Status and the desired Anafaze Profile instruments. See *Manually Set up or Modify a Modbus RTU, 485 or 232 Network* on page 22.
32MLS, MLS332	Anafaze 32 Loop	
8CLS, CLS208 4CLS, CLS204	Anafaze 8 Loop	
32MLS (Anafaze protocol)	Anafaze/AB	

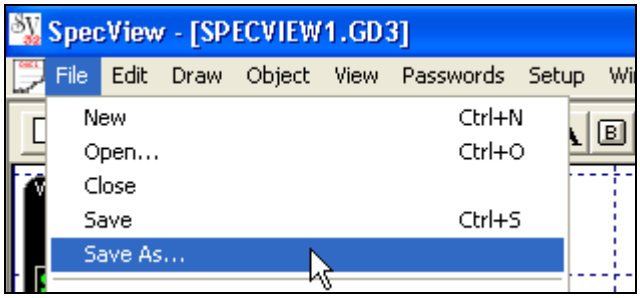
[1]Scan with the Watlow F4 Programmer driver only if the F4 programmer option is enabled.

10) If another protocol must be scanned, click **Cancel** and repeat this procedure from step 8 for the next protocol.

11) Click **OK**.



12) To save the GDW:
- From the **File** menu, choose **Save As.**
- Enter a **File name** for the GDW.
- Click **Save**.



Note: When the controllers are automatically detected using Modbus, SpecView is configured to display parameters such as set point and process variable as whole numbers. See *Adjust the Displayed Decimals* on page 31 to use another decimal setting.

Manually Set up or Modify an EZ-ZONE Standard Bus Network

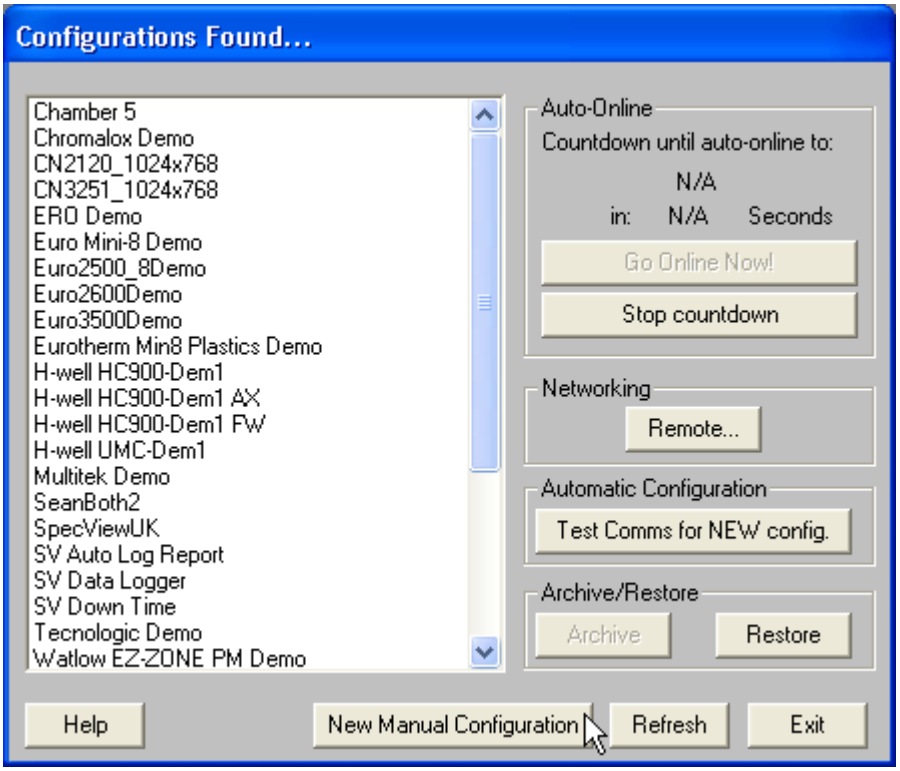
The following procedures guide you through the process of manually creating a configuration for a Standard Bus network and adding devices to this configuration. Use this procedure when the EZ-ZONE controllers are not available to detect automatically or when you want to add a new EZ-ZONE controller to an existing configuration and therefore do not want to automatically create a new configuration.

To create a manual configuration:

1) Launch SpecView.

2) Click through any informational dialogs until you get to the **Configurations Found** dialog.

3) Click **New Manual Configuration**.



4) Enter a name for the configuration.

5) Click **OK**.

To add one or more instruments to a configuration:

1) Open the Graphical Display Window in the configuration mode if it is not already open.

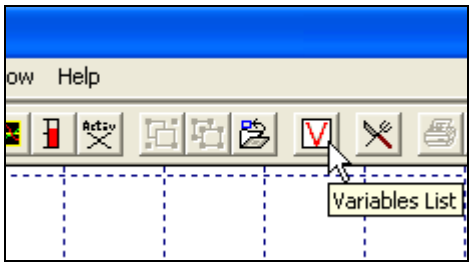
2) Click the **Variables** button.

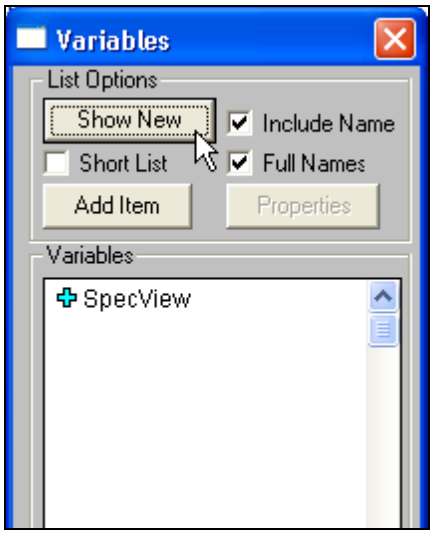
3) Click **Show New**.

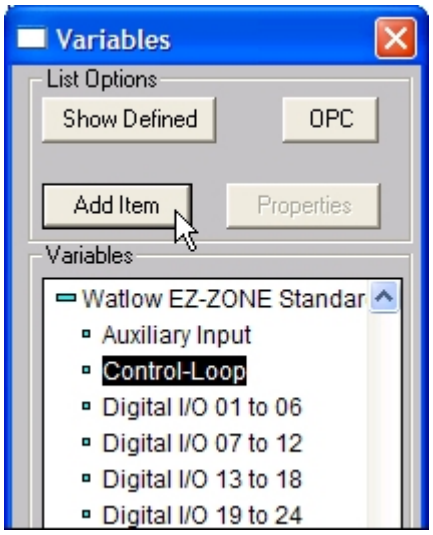
4) In the **Variables** list click ✚ to expand **Watlow EZ-ZONE Standard Bus**.

5) Select the instrument you want to add. (See the table below.)

6) Click **Add Item**.







For This Controller…	From this Protocol Driver…	Add These Instruments…	With Address String…
EZ-ZONE PM	Watlow EZ-ZONE Standard Bus	See *Using EZ-ZONE Controllers* on page *5*.	
EZ-ZONE PM Express Controller[1]	Watlow EZ-ZONE Standard Bus	PM Express Controller	z
EZ-ZONE PM Express Limit[1]	Watlow EZ-ZONE Standard Bus	PM Express Limit_	z
EZ-ZONE RM	Watlow EZ-ZONE Standard Bus	See *Using EZ-ZONE Controllers with Standard Bus* on page 5.	
EZ-ZONE ST	Watlow EZ-ZONE Standard Bus	ST Controller	z
		ST Profiling[2]	z
		Anafaze MLS32 Channel(1/loop)	z,n,1 (n = loop)

[1]For PM model numbers of the form PMxxxxx-AAAABxx.
[2]Add these instruments for a controller that includes the ramp and soak or profiling option.

7) In the **Add/Rename Instrument** dialog type a **Name** for the instrument.

8) Select the **Port**.

9) Enter the **Address** in the form from the table above where **z** is the address or zone number set in the controller.

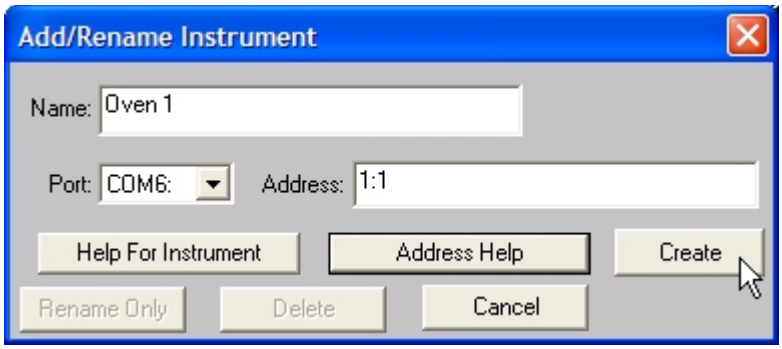
10) Click **Create**.

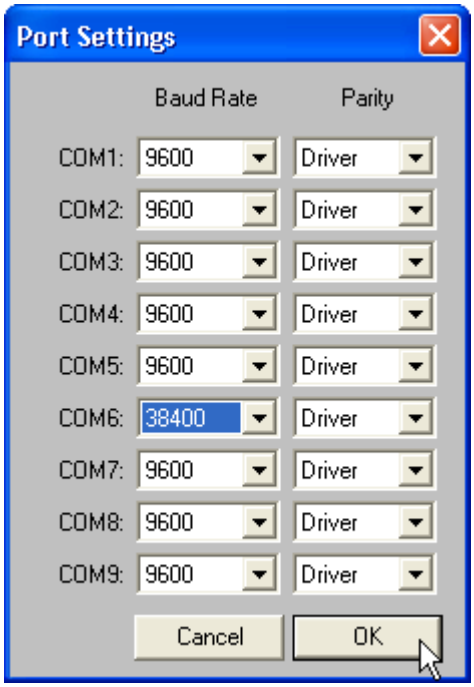
11) The first time you add an instrument on a port, SpecView opens the **Port Settings Dialog**. When this happens: Click **OK** (for Standard Bus no change is needed)**.**

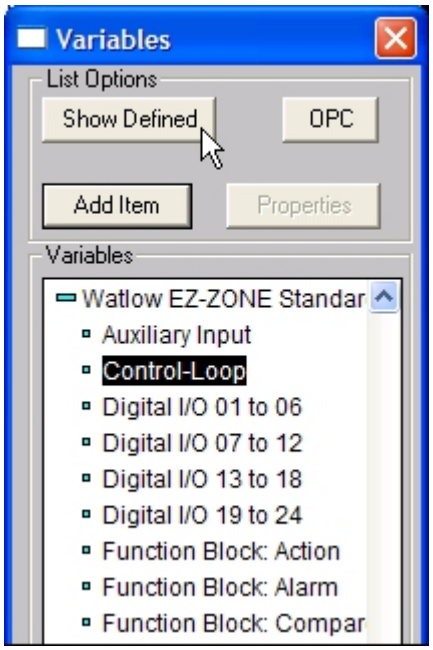
12) Repeat from step 4 for each instrument to be added.

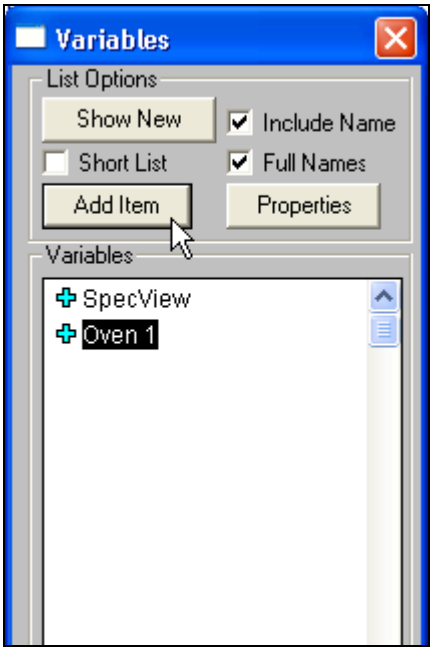
13) Click **Show Defined**.

14) To add instrument views to the GDW, for each:
    - In the **Variables** list select the instrument**.**
    - Click **Add Item**.

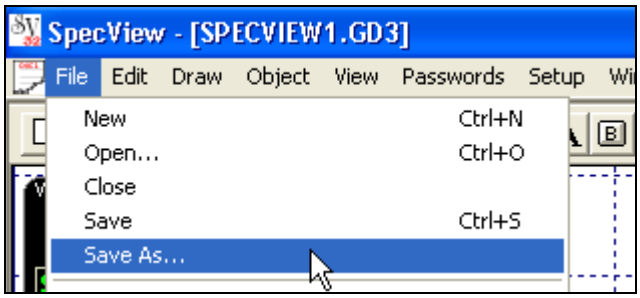








15) To save the GDW:
- From the **File** menu, choose **Save As.**
- Enter a **File name** for the GDW.
- Click **Save**.



Manually Set up or Modify a Modbus RTU, 485 or 232 Network

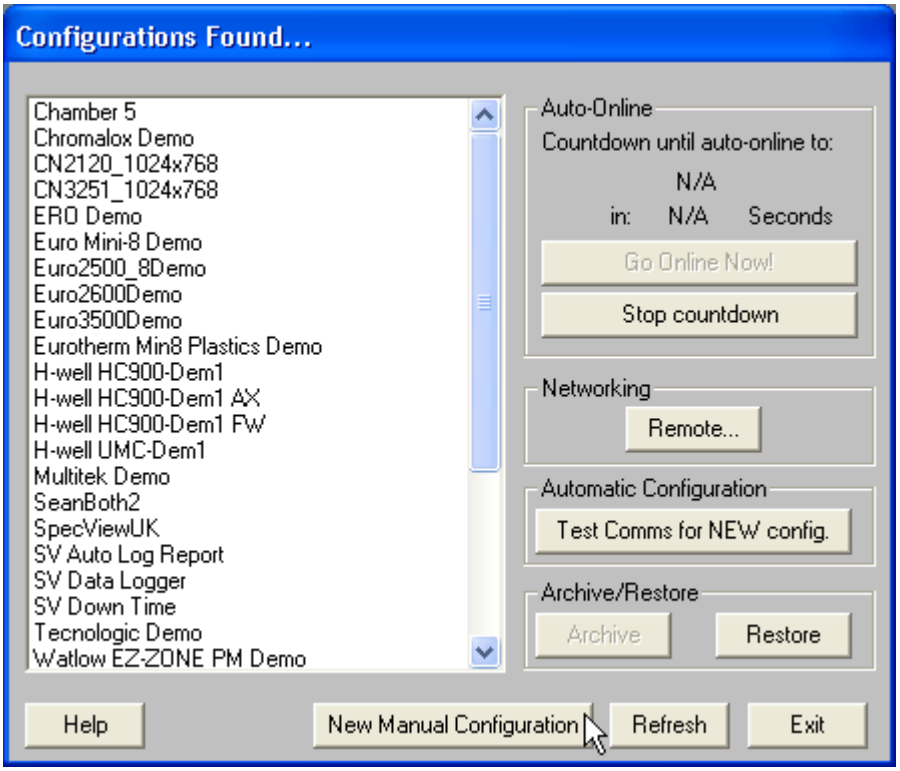
The following procedures guide you through the process of manually creating a configuration for a Modbus RTU, 485 or 232 network and adding devices to this configuration. Use this procedure when the controllers are not available to detect automatically, when you want to add a new controller to an existing configuration and for creating configurations that communicate with EZ-ZONE controllers via Modbus RTU.

To create a manual configuration:

1) Launch SpecView.

2) Click through any informational dialogs until you get to the **Configurations Found** dialog.

3) Click **New Manual Configuration**.



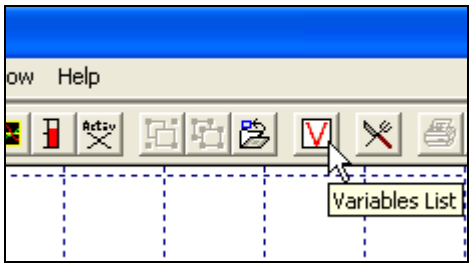
4) Enter a name for the configuration.

5) Click **OK**.

To add one or more instruments to a configuration:

1) Open the Graphical Display Window in the configuration mode if it is not already open.

2) Click the **Variables** button.

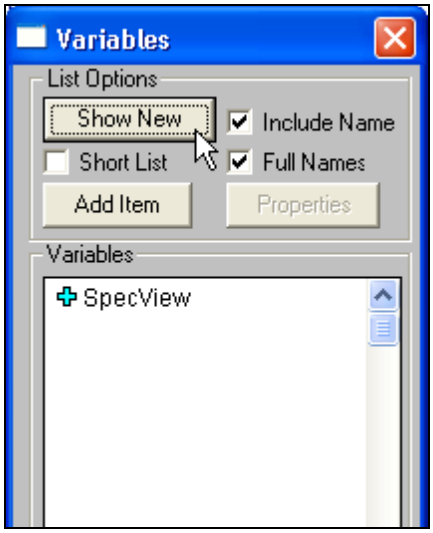


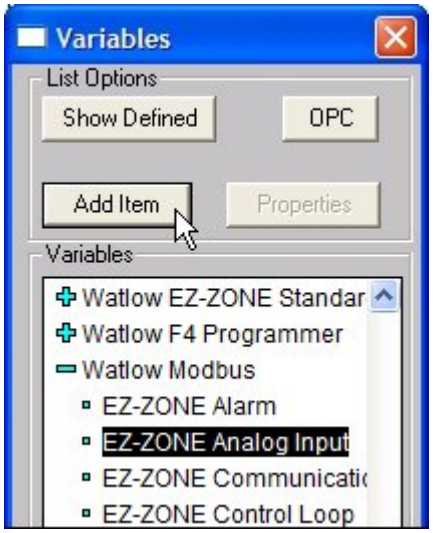
3) Click **Show New**.

4) In the **Variables** list click the ✚ button next to the protocol driver that includes the instrument you want to add. See the table below.

5) Select the instrument you want to add.

6) Click **Add Item**.





For This Controller…	From this Protocol Driver…	Add These Instruments…	With Address String…
EZ-ZONE PM	Watlow Modbus	See *Using EZ-ZONE Controllers with Modbus* on page 11.	
EZ-ZONE PM Express Controller	Watlow Modbus		
EZ-ZONE PM Express Limit	Watlow Modbus		
EZ-ZONE RM	Watlow Modbus		
EZ-ZONE ST	Watlow Modbus		
MICRODIN	Watlow Modbus	MicroDin	z,0
SERIES 96	Watlow Modbus	Series 96	z,0
SERIES 97	Watlow Modbus	SERIES 97 Limit	z,0
SERIES SD	Watlow Modbus	SERIES SD Controller	z,0
		SERIES SD Profiling[1]	z,0
SERIES SD Limit	Watlow Modbus	SERIES SD Limit	z,0

For This Controller…	From this Protocol Driver…	Add These Instruments…	With Address String…
986, 987, 988, 989	Watlow Modbus	Watlow 988	z,0
POWER SERIES	Watlow Modbus	Watlow Power Series	z,0
SERIES F4 Ramping	Watlow Modbus	Watlow F4	z,0
		F4 Cascade	z,0
	Watlow F4 Programmer	Watlow F4 Program[2]	z,0
16CLS, 16MLS, CLS216, MLS316	Anafaze 16 Loop	MLS CPU	z,1M
		MLS(16)Ch (1 per loop)	z,1M;n (n = loop)
32MLS, MLS332	Anafaze 32 Loop	MLS CPU	z,1M
		MLS(32)Ch (1 per loop)	z,1M;n (n = loop)
8CLS, CLS208 4CLS, CLS204	Anafaze 8 Loop	MLS CPU	z,1M
		CLS(8)Ch (1 per loop)	z,1M;n (n = loop)
CLS204, CLS208, CLS216, MLS316, MLS332	Anafaze Ramp/Soak	Anafaze Profile Status[1]	z,1M
		Anafaze Profile A to Anafaze Profile Q (as many as desired to program) [2]	z,1M
32MLS (Anafaze protocol)	Anafaze/AB	Anafaze CPU	z,0,1
		Anafaze MLS32 Channel(1/loop)	z,n,1 (n = loop)

[1]Add these instruments for a controller that includes the ramp and soak or profiling option.
[2]Add the Watlow F4 Program instrument only if the F4 programmer option is enabled in the SpecView key.

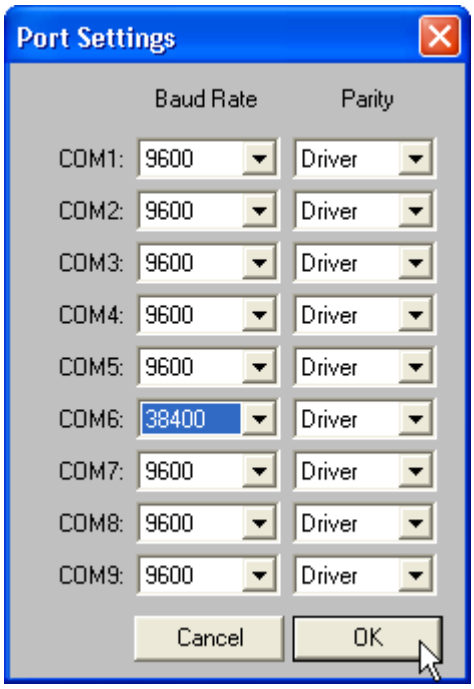
7) In the **Add/Rename Instrument** dialog type a **Name** for the instrument.

8) Select the **Port**.

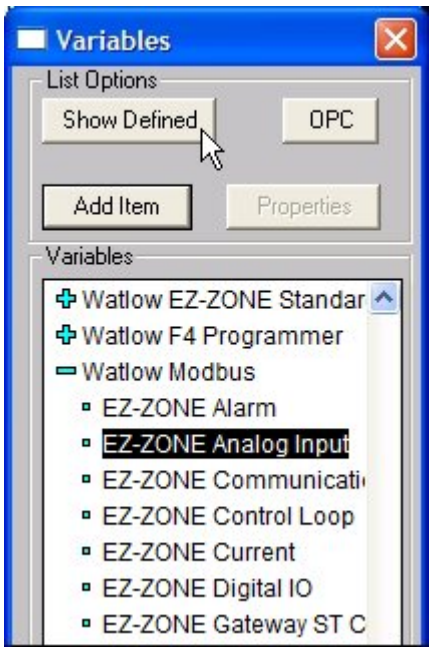
9) Enter the **Address** as directed in *Using EZ-ZONE Controllers with Modbus* on page 11 or for controllers other than EZ-ZONE, in the form from the table above where **z** is the address or zone number set in the controller.

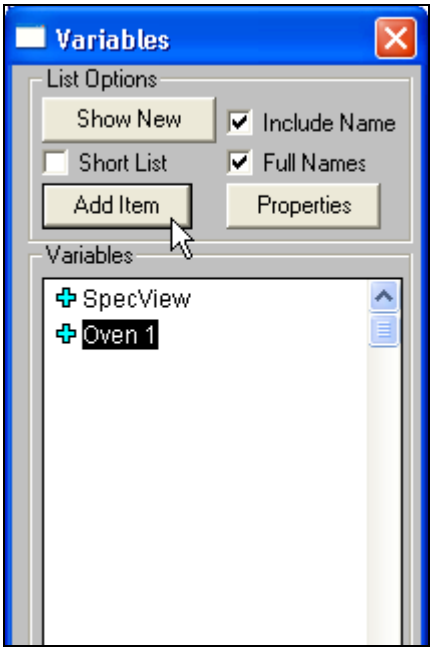
10) Click **Create**.

11) The first time you add an instrument on a port, SpecView opens the **Port Settings Dialog**. When this happens:
    - Set the **Baud Rate** for the **Port** (for Standard Bus no change is needed)**.**
    - Click **OK.**
12) Repeat from step 4 for each instrument to be added.

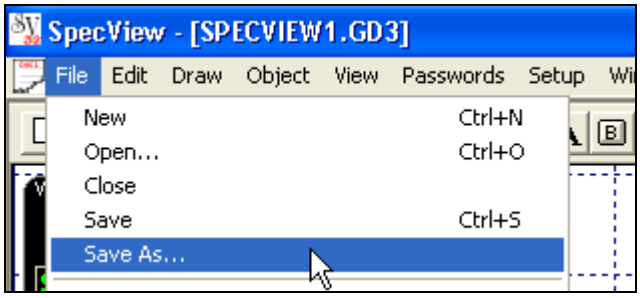


13) Click **Show Defined**.
14) To add instrument views to the GDW, for each:
    - In the **Variables** list select the instrument**.**
    - Click **Add Item**.





15) To save the GDW:
    - From the **File** menu, choose **Save As.**
    - Enter a **File name** for the GDW.
    - Click **Save**.



Note: This procedure configures SpecView to display parameters such as set point and process variable as whole numbers when communicating by Modbus. See *Adjust the Displayed Decimals* on page 31 to use another decimal setting.

Manually Set up or Modify an EZ-ZONE Modbus TCP Network

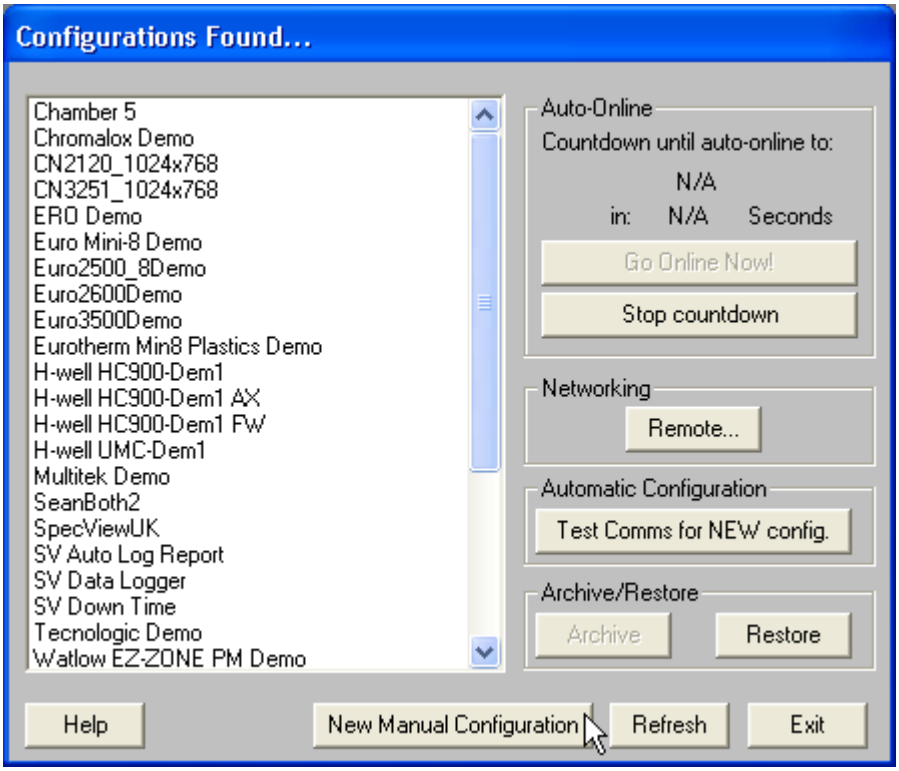
The following procedures guide you through the process of configuring SpecView to communicate with EZ-ZONE controllers via Modbus TCP and adding instruments to the configuration.

To create a new configuration:

1) Launch SpecView.

2) Click through any informational dialogs until you get to the **Configurations Found** dialog.

3) Click **New Manual Configuration**.



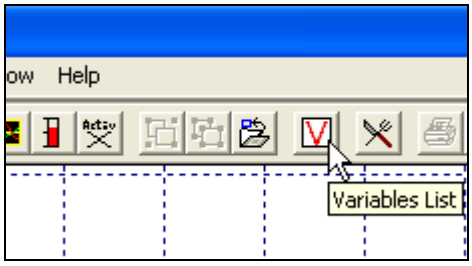
4) Enter a name for the configuration

5) Click **OK**.

To add one or more EZ-ZONE PMs to a configuration:

1) Open the Graphical Display Window in the configuration mode if it is not already open.

2) Click the **Variables** button.

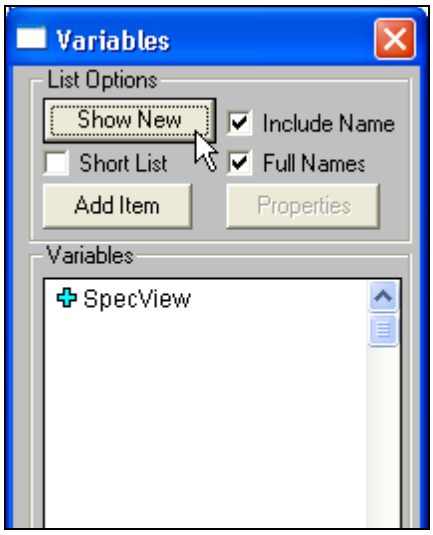


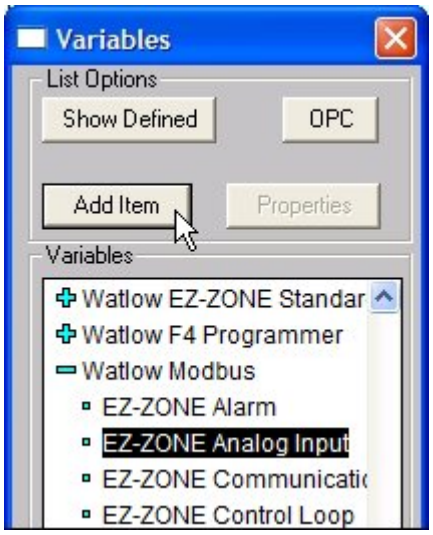
3) Click **Show New**.

4) In the **Variables** list click the ✚ button next to **Watlow Modbus**.

5) Select the instrument you want to add. See the table below.

6) Click **Add Item**.



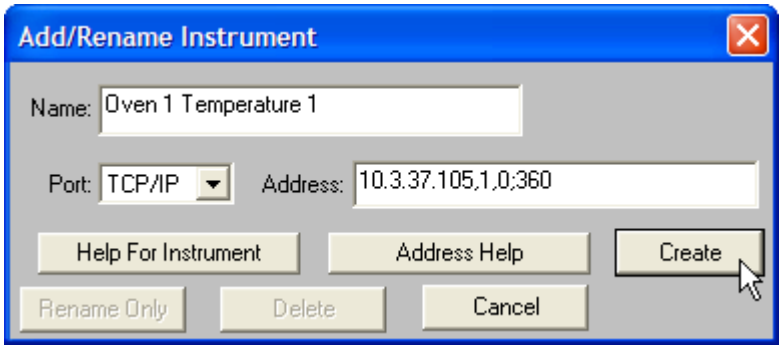


For This Controller…	From this Protocol Driver…	Add These Instruments…	With Address String…
EZ-ZONE PM	Watlow Modbus	See *Using EZ-ZONE Controllers with Modbus* on page 11.	
EZ-ZONE PM Express Controller	Watlow Modbus		
EZ-ZONE PM Express Limit	Watlow Modbus		
EZ-ZONE RM	Watlow Modbus		
EZ-ZONE ST	Watlow Modbus		

7) In the **Add/Rename Instrument** dialog for **Port** select **TCP/IP**.

8) In the **Address** field insert the address string. See *Using EZ-ZONE Controllers with Modbus* on page *11*. For example, “10.3.37.105,1,0;360”

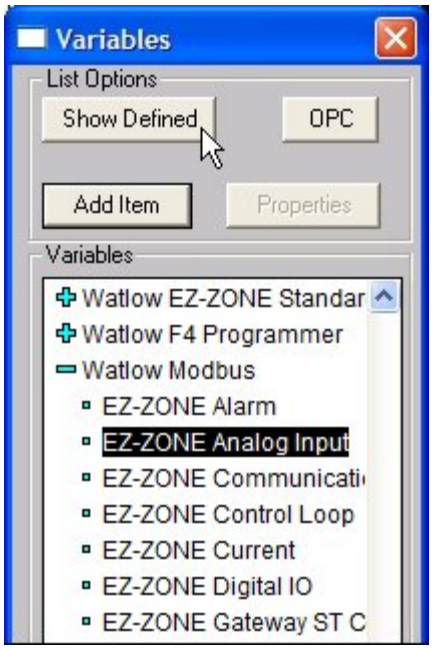
9) Click **Create**.

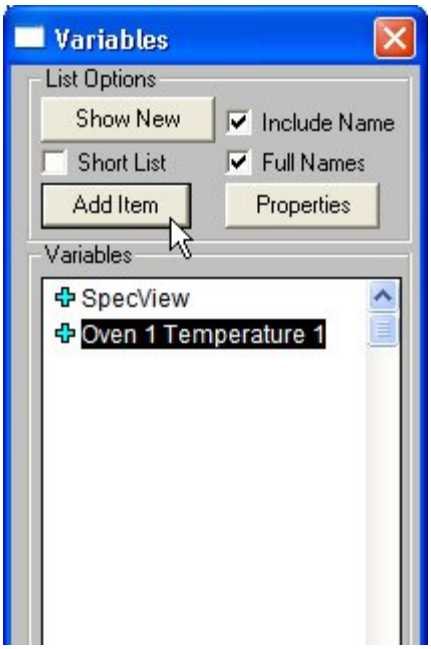


10) Repeat steps 5 to 9 as needed to add additional instruments.

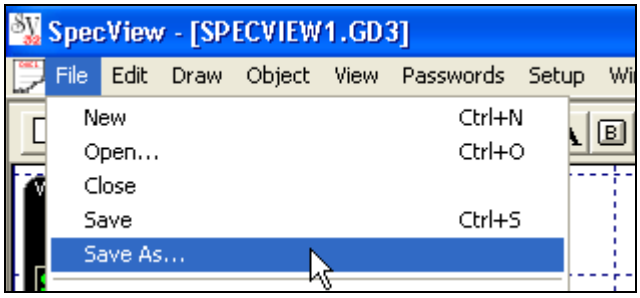
11) Click **Show Defined**.

12) To add instrument views to the GDW, for each:
    - In the **Variables** list select the instrument**.**
    - Click **Add Item**.





13) To save the GDW:
    - From the **File** menu, choose **Save As**.
    - Enter a **File name** for the GDW.
    - Click **Save**.



Rename an Instrument

In order to more easily correlate items in SpecView's Graphical Display Windows (GDWs) with the devices and processes they represent you may want to change an instrument's name. The following procedures illustrate how to change a controller's name and how to replace any instrument views with renamed ones.

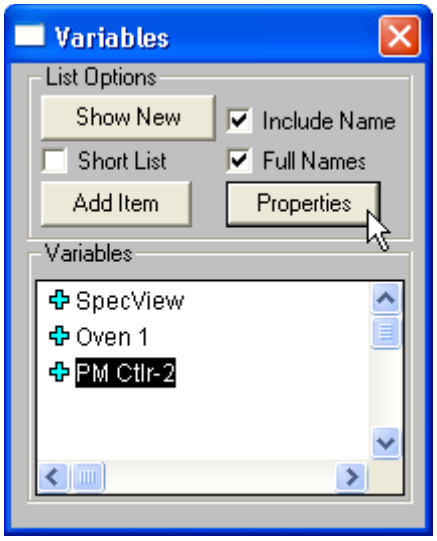
To rename an instrument:

1) With SpecView running, from the **File** menu choose **Configuration Mode**.

2) Click to open the Variables list.

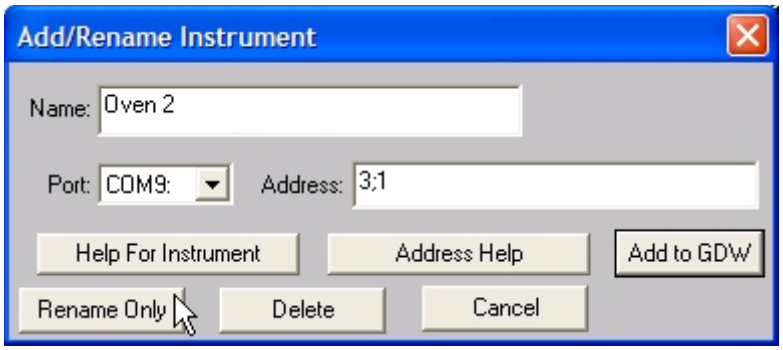
3) Select the controller you want to rename.

4) Click **Properties**.



5) Enter the desired **Name.**

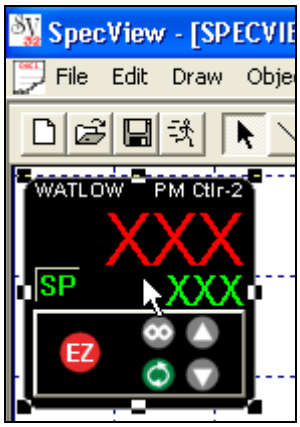
6) Click **Rename Only**.

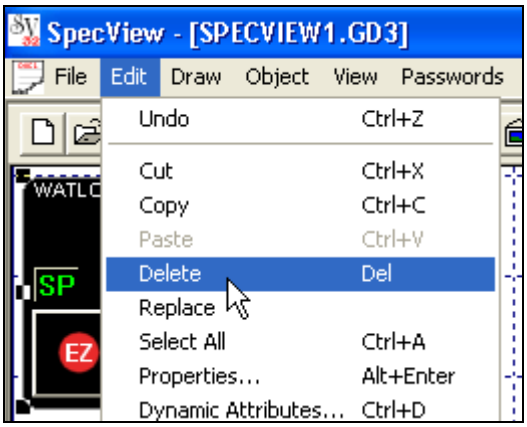


Note: Instrument views on screens are not updated automatically, but can be replaced.

To replace an instrument view:

1) Delete the instrument view to be replaced:
   - Select the instrument view by clicking it.
   - From the **Edit** menu, choose **Delete.**

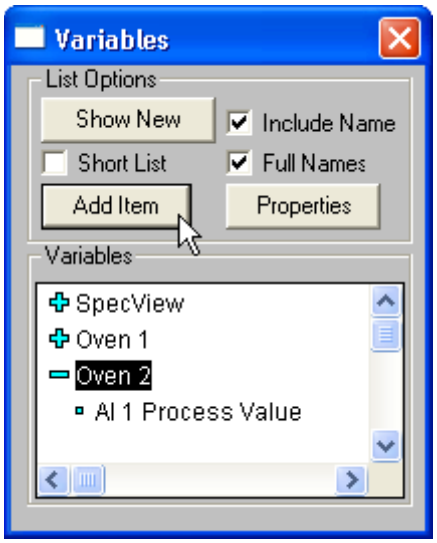


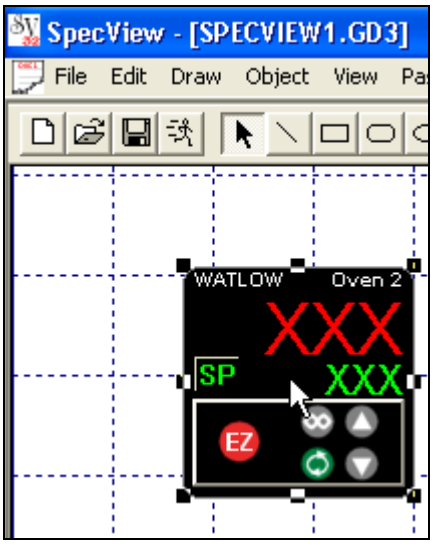


2) In the **Variables List** select the instrument to add.

3) Click **Add Item**.

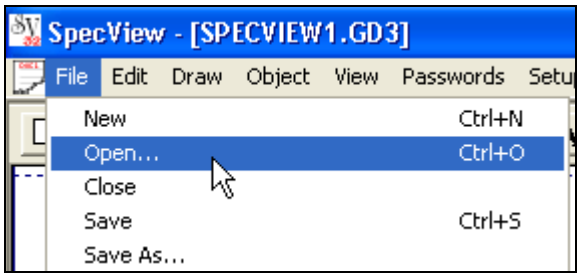
4) Drag the instrument view to place it where you want it.





5) To save the GDW:
   - From the **File** menu, choose **Save.**

6) To update another GDW:
   - From the **File** menu, choose **Open.**
   - Locate and select the GDW.
   - Click **Open**.
   - Repeat from step 1 above.



Adjust the Displayed Decimals

The following procedures describe how to adjust the number of decimal places displayed in SpecView.

Note this procedure does not apply to EZ-ZONE controllers communicating with SpecView by Watlow EZ-ZONE Standard Bus because with that protocol the decimal places are automatically displayed according to the controller setting.

To make the number of decimal places displayed in SpecView match the controller display:

1) Set the decimal setting in the controller as desired. (See the table for details about each controller.

For This Controller…	For Sensor Type…	Parameter in SpecView…	Parameter in Controller…	Available Decimals
EZ-ZONE ST, PM, RM	Any	N/A	dEC	0 to 3
MICRODIN	Any	Decimal Point	(No Display)	0 or 1
SERIES 96	Thermocouple, RTD	Decimal Pt 1	dEC1	0 or 1
	Process	Decimal Pt 1	dEC1	0 to 3
SERIES 97	Any	Decimal 1	dEC1	0 or 1
SERIES SD Controller	Thermocouple, RTD	See Note[1]	dEC	0 or 1
SERIES SD Limit	Process (mA, mV, V)	See Note[2]	dEC	0 to 3
POWER SERIES	Not available			
986, 987, 988, 989	Any	Decimal 1 Decimal 2	dEC1	0 to 3
SERIES F4 Ramping	Thermocouple, RTD, Wet Bulb-Dry Bulb	Input 1 DecPlaces Input 2 DecPlaces Input 3 DecPlaces	Choose Decimal	0 or 1
	Process	Input 1 DecPlaces Input 2 DecPlaces Input 3 DecPlaces	Choose Decimal	0 to 3
CLS, MLS, CLS200, MLS300	Thermocouple, RTD	Precision	Disp Format	1
	Linear	Precision	Disp Format	0 to 4

[1]For a SERIES SD with a thermocouple or RTD set the *Decimals (Ctlr Temp Display Only)* parameter, the *Decimals (SpecView and Ctlr Prcs Display)* parameter and SpecView for the same number of decimals.

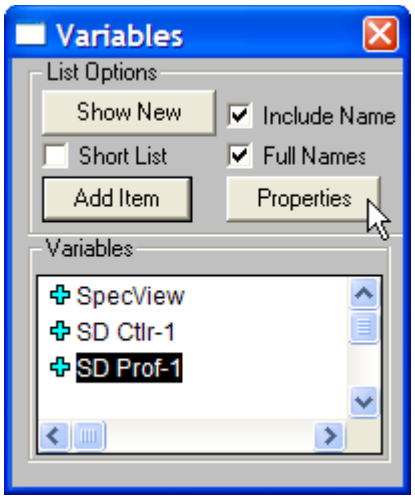
[2]For a SERIES SD with a process input (mA, mV or V) set the *Decimals (SpecView and Ctlr Prcs Display)* parameter and SpecView for the same number of decimals.

2) With SpecView running, to enter the configuration mode, from the **File** menu choose **Configuration Mode**.

3) Click to open the Variables list.

4) Select the instrument.

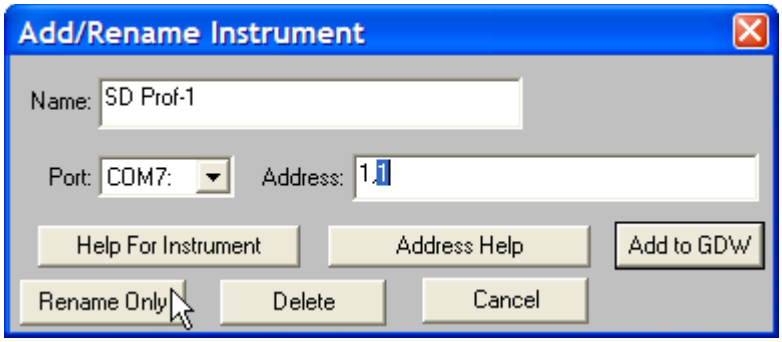
5) Click **Properties**.



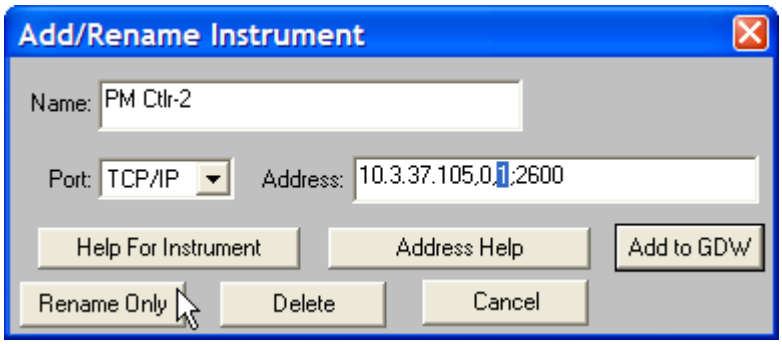
6) In the **Address** field set the decimal places corresponding to the controller setting
0 for whole numbers,
1 for tenths,
2 for hundredths,
3 for thousandths
4 for ten-thousandths:

- For Modbus RTU protocol set the number after the comma.
- For Modbus TCP or Anafaze/AB protocols set the number after the second comma.

7) Click **Rename Only**.

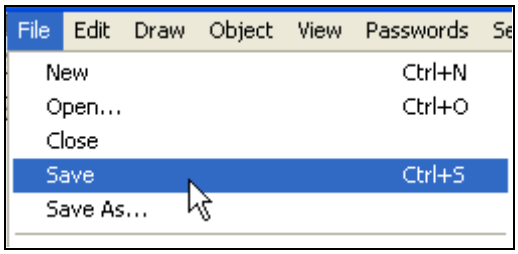


Modbus RTU: the decimal setting is after the comma



Modbus TCP: the decimal setting is after the second comma

8) To save the GDW:
- From the **File** menu, choose **Save.**



Note: The possible decimal settings may depend on other controller settings such as the sensor type. Not all parameters are affected by the decimal setting.

4 Chapter 4: Feature Reference

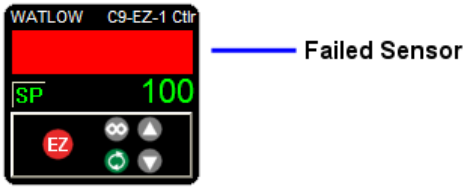
This chapter describes the instruments and instrument views supporting Watlow EZ-ZONE products.

EZ-ZONE Standard Bus Instrument Views

The following sections describe the instrument views that are available for use when EZ-ZONE controllers are connected to SpecView via a Standard Bus network.

Failed Sensor Indication

When the area that normally displays a process value on an instrument view is covered by a red rectangle, the instrument is indicating that the sensor has failed.

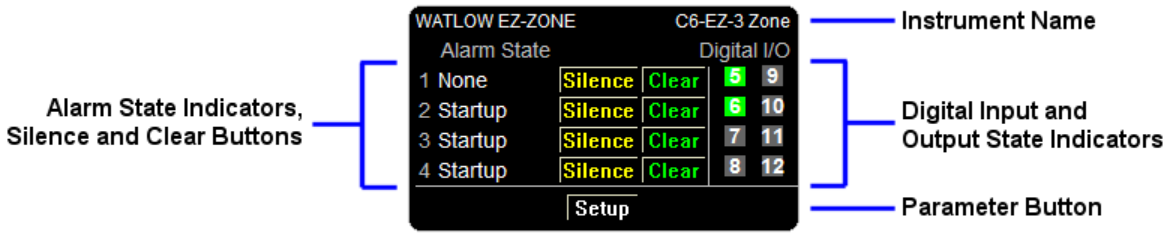


Failed sensor indication

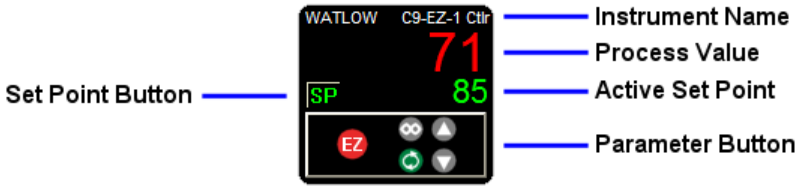
CAUTION: This feature may not be available for all instruments, so take the appropriate precautions to insure fail-safe system operation.

EZ-ZONE PM Standard Bus Instruments

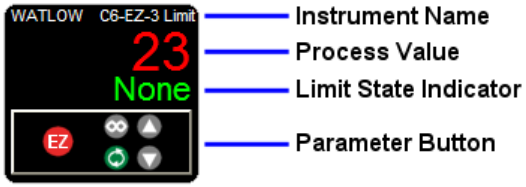
EZ-ZONE PM controllers, limit controller and integrated controller are supported by the *PM Zone*, *Control Loop*, *Integrated Limit*, *Stand Alone and RM Limit*, *Auxiliary Input*, *Single Current Input*, *PM Function Blocks*, *PM Profiling*, *PM Express Controller* and *PM Express Limit_* instruments. The corresponding instrument views are illustrated below.



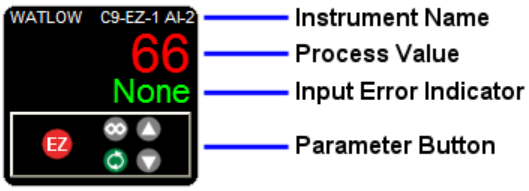
PM Zone



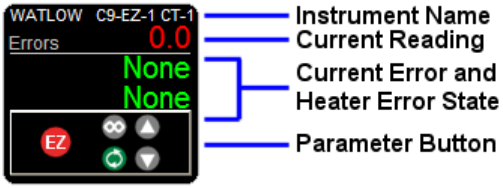
Control Loop* and *PM Express Controller



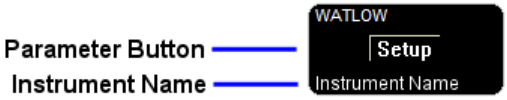
Integrated Limit*, *Stand Alone and RM Limit* and *PM Express Limit_



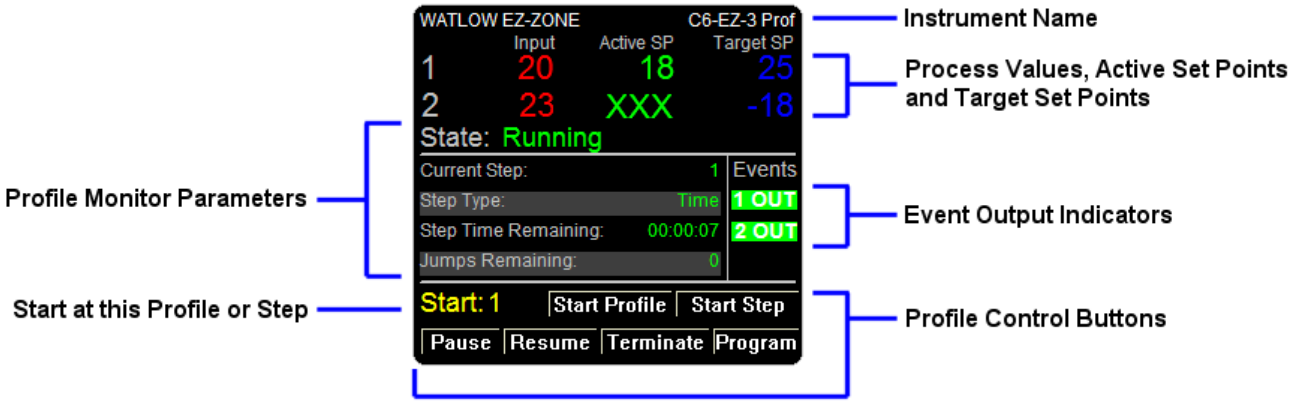
Auxiliary Input



Single Current Input



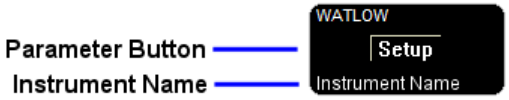
PM Function Blocks



PM Profiling

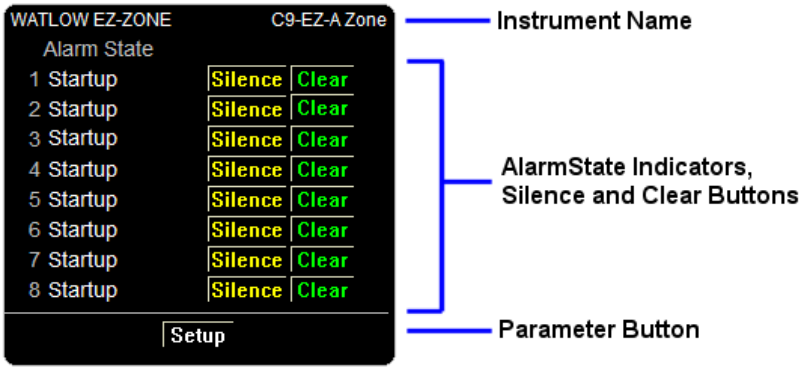
EZ-ZONE RM Standard Bus Instruments

EZ-ZONE RM control systems are supported by a wide variety of instruments. The *PM Timer, RMA Zone, RMA Gateway, RM Data Logging, RMC Outputs 1 to 8, RM Function Blocks,* as well as eight instruments for programming profiles and sub routines in RM control modules and four instruments for configuring outputs are supported with the simple parameter button instrument view.

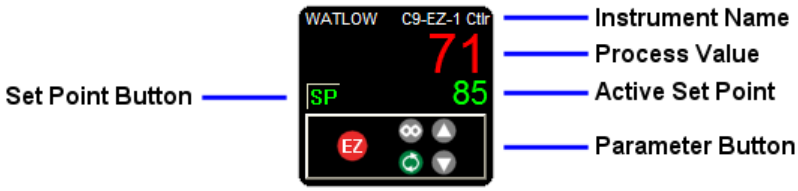


Parameter Button instrument View.

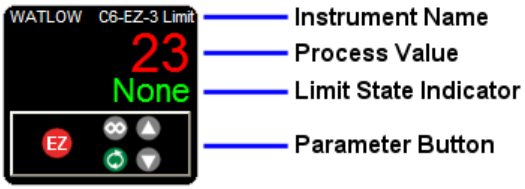
The *RM Zone*, *Control Loop*, *Stand Alone and RM Limit*, *Auxiliary Input*, *Single Current Input* and *RMC Profile Operation* instruments and a sample of the four *Digital I/O* instruments are illustrated below.



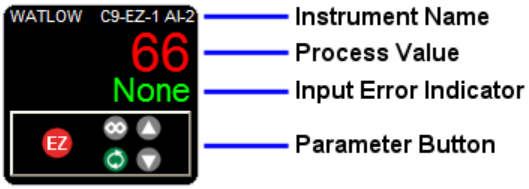
RM Zone



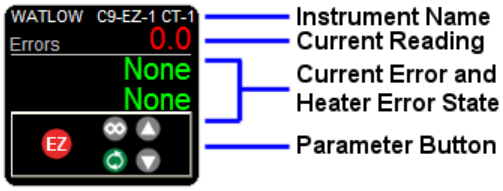
Control Loop



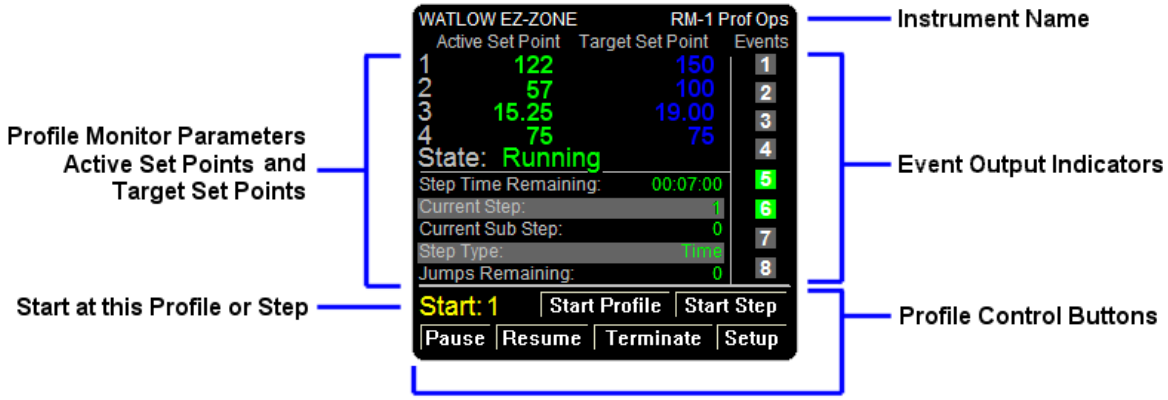
Stand Alone and RM Limit



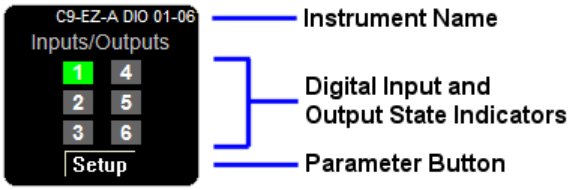
Auxiliary Input



Single Current Input



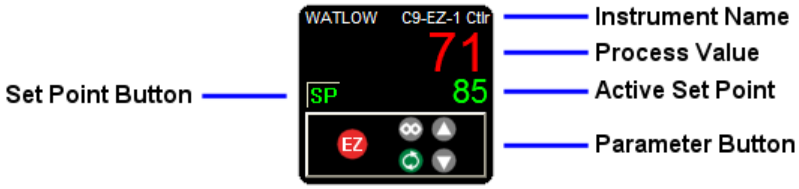
RMC Profile Operation



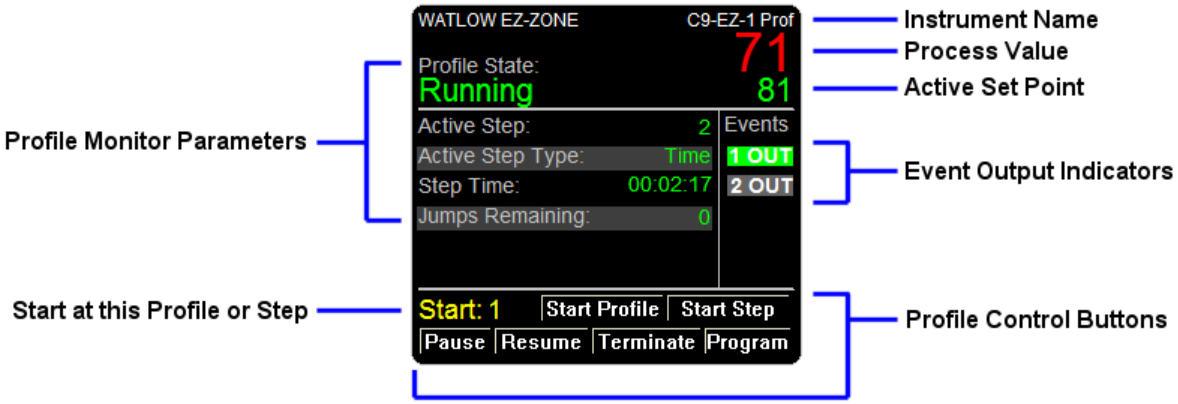
Digital I/O

EZ-ZONE ST Standard Bus Instruments

The EZ-ZONE ST is supported by the *ST Controller* and *ST Profiling* instruments. The corresponding instrument views are illustrated below.



ST Controller



ST Profiling

EZ-ZONE Modbus Instruments

Watlow recommends using Standard Bus communications between SpecView and EZ-ZONE products because there are many advantages including automatic detection. However, there are situations where it may be preferable to use Modbus RTU or Modbus TCP. For these cases the following instruments are offered. The tables below list the parameters supported by these instruments.

EZ-ZONE Alarm

State
High Set Point
Low Set Point
Clear Request
Silence Request

EZ-ZONE Analog Input

Input Value
Error Status
Cal Offset
Clear Latch

EZ-ZONE Communications

Display Units
Non-volatile Save

EZ-ZONE Control Loop

Control Mode
Control Mode Active
Heat Prop Band
Cool Prop Band
Time Integral
Time Derivative
Dead Band
Heat Hysteresis
Cool Hysteresis
Heat Power
Cool Power
Output Power
TRU-TUNE+ Enable
Autotune Request
Autotune Status

EZ-ZONE Current

Read
Reading RMS
Error
Heater Error
High Set Point
Low Set Point

EZ-ZONE Digital I/O

Input State
Output State
Direction

EZ-ZONE Limit

State
Status
Low Set Point
High Set Point
Clear Request

EZ-ZONE Set Points

Clsd-Loop Set Point
Open Loop Set Point
Clsd-Loop Working SP
Open Loop Working SP
Idle Set Point
Ramp Working SP
Ramp Target SP

EZ-ZONE Profile Operation

Profile State
Profile Start
Profile Action Request
Active Step
Current File
Active Step Type
Target SP Loop 1
Target SP Loop 2
Target SP Loop 3
Target SP Loop 4
Produced SP Loop 1
Produced SP Loop 2
Produced SP Loop 3
Produced SP Loop 4
Step Time Remaining
Event 1
Event 2
Event 3
Event 4
Event 5
Event 6
Event 7
Event 8
Jump Count Remaining

EZ-ZONE Profile (Map 1)

This instrument includes the following parameters for each of the ten steps in a profile.

Type
Target Set Point 1
Hours
Minutes
Seconds
Rate
Wait For Process 1
Wait for Process Instance
Wait Event 1
Wait Event 2
Jump Step
Jump Count
End Type
Event 1
Event 2

EZ-ZONE Profile (Map 2)

This instrument includes the following parameters for each of the ten steps in a profile.

Type
Control Mode 1
Control Mode 2
Control Mode 3
Control Mode 4
Target Set Point 1
Target Set Point 2
Target Set Point 3
Target Set Point 4
Hours
Minutes
Seconds
Rate
Wait For Process Enable 1
Wait For Process 1
Wait For Process Enable 2
Wait For Process 2
Wait For Process Enable 3
Wait For Process 3
Wait For Process Enable 4
Wait For Process 4
Wait for Process Instance
Wait Event 1
Wait Event 2
Wait Event 3
Wait Event 4
Day of Week
Guaranteed Soak Enable 1
Guaranteed Soak Enable 2
Guaranteed Soak Enable 3
Guaranteed Soak Enable 4
Subroutine Step
Subroutine Count
Jump Step
Jump Count
End Type
Event 1
Event 2
Event 3
Event 4
Event 5
Event 6
Event 7
Event 8

EZ-ZONE Profile (ST Map 1)

This instrument includes the listed parameters for each of the ten steps in a profile.

- Type
- Target Set Point 1
- Hours
- Minutes
- Seconds
- Rate
- Wait For Process 1
- Wait Event 1
- Wait Event 2
- Jump Step
- Jump Count
- End Type
- Event 1
- Event 2

EZ-ZONE Sub Routine

This instrument includes the following parameters for each of the ten steps in a sub routine.

- Type
- Control Mode 1
- Control Mode 2
- Control Mode 3
- Control Mode 4
- Target Set Point 1
- Target Set Point 2
- Target Set Point 3
- Target Set Point 4
- Hours
- Minutes
- Seconds
- Rate
- Wait For Process Enable 1
- Wait For Process 1
- Wait For Process Enable 2
- Wait For Process 2
- Wait For Process Enable 3
- Wait For Process 3
- Wait For Process Enable 4
- Wait For Process 4
- Wait Event 1
- Wait Event 2
- Wait Event 3
- Wait Event 4
- Day of Week
- Guaranteed Soak Enable 1
- Guaranteed Soak Enable 2
- Guaranteed Soak Enable 3
- Guaranteed Soak Enable 4
- Event 1
- Event 2
- Event 3
- Event 4
- Event 5
- Event 6
- Event 7
- Event 8

How to Reach Us

Corporate Headquarters

Watlow Electric Manufacturing Company
12001 Lackland Road
St. Louis, MO 63146
Sales: 1-800-WATLOW2
Manufacturing Support: 1-800-4WATLOW
Email: info@watlow.com
Website: www.watlow.com
From outside the USA and Canada:
Tel: +1 (314) 878-4600
Fax: +1 (314) 878-6814

Latin America

Watlow de México S.A. de C.V.
Av. Fundición No. 5
Col. Parques Industriales
Querétaro, Qro. CP-76130
Mexico
Tel: +52 442 217-6235
Fax: +52 442 217-6403

Europe

Watlow France
Tour d'Asnières.
4 Avenue Laurent Cély
92600 Asnières sur Seine
France
Tél: + 33 (0)1 41 32 79 70
Télécopie: + 33(0)1 47 33 36 57
Email: info@watlow.fr
Website: www.watlow.fr

Watlow GmbH
Postfach 11 65, Lauchwasenstr. 1
D-76709 Kronau
Germany
Tel: +49 (0) 7253 9400-0
Fax: +49 (0) 7253 9400-900
Email: info@watlow.de
Website: www.watlow.de

Watlow Italy S.r.l.
Viale Italia 52/54
20094 Corsico MI
Italy
Tel: +39 024588841
Fax: +39 0245869954
Email: italyinfo@watlow.com
Website: www.watlow.it

Watlow Ibérica, S.L.U.
C/Marte 12, Posterior, Local 9
E-28850 Torrejón de Ardoz
Madrid - Spain
T. +34 91 675 12 92
F. +34 91 648 73 80
Email: info@watlow.es
Website: www.watlow.es

Watlow UK Ltd.
Linby Industrial Estate
Linby, Nottingham, NG15 8AA
United Kingdom
Telephone: (0) 115 964 0777
Fax: (0) 115 964 0071
Email: info@watlow.co.uk
Website: www.watlow.co.uk
From outside The United Kingdom:
Tel: +44 115 964 0777
Fax: +44 115 964 0071

Asia and Pacific

Watlow Singapore Pte Ltd.
16 Ayer Rajah Crescent,
#06-03/04,
Singapore 139965
Tel: +65 6773 9488 Fax: +65 6778 0323
Email: info@watlow.com.sg Website: www.watlow.com.sg

Watlow Australia Pty., Ltd.
4/57 Sharps Road
Tullamarine, VIC 3043
Australia
Tel: +61 3 9335 6449
Fax: +61 3 9330 3566
Website: www.watlow.com

Watlow Electric Manufacturing Company (Shanghai) Co. Ltd.
Room 501, Building 10, KIC Plaza
290 Songhu Road, Yangpu District
Shanghai, China 200433
China
Phone:
Local: 4006 Watlow (4006 928569)
International: +86 21 3381 0188
Fax: +86 21 6106 1423
Email: vlee@watlow.cn
Website: www.watlow.cn

ワトロー・ジャパン株式会社
〒101-0047 東京都千代田区内神田1-14-4
四国ビル別館9階
Tel: 03-3518-6630 Fax: 03-3518-6632
Email: infoj@watlow.com Website: www.watlow.co.jp

Watlow Japan Ltd.
1-14-4 Uchikanda, Chiyoda-Ku
Tokyo 101-0047
Japan
Tel: +81-3-3518-6630 Fax: +81-3-3518-6632
Email: infoj@watlow.com Website: www.watlow.co.jp

Watlow Korea Co., Ltd.
#1406, E&C Dream Tower, 46, Yangpyeongdong-3ga
Yeongdeungpo-gu, Seoul 150-103
Republic of Korea
Tel: +82 (2) 2628-5770 Fax: +82 (2) 2628-5771
Website: www.watlow.co.kr

Watlow Malaysia Sdn Bhd
1F-17, IOI Business Park
No.1, Persiaran Puchong Jaya Selatan
Bandar Puchong Jaya
47100 Puchong, Selangor D.E.
Malaysia
Tel: +60 3 8076 8745 Fax: +60 3 8076 7186
Email: vlee@watlow.com
Website: www.watlow.com

瓦特龍電機股份有限公司
80143 高雄市前金區七賢二路189號 10樓之一
電話: 07-2885168 傳真: 07-2885568

Watlow Electric Taiwan Corporation
10F-1 No.189 Chi-Shen 2nd Road Kaohsiung 80143
Taiwan
Tel: +886-7-2885168 Fax: +886-7-2885568

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